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Profile of Full-time Teachers
at Canadian Universities ...

Summary

During the last few years the socio-economic characteristics of university teachers have changed substantially. This is a reflection of changes in the economy, the labour market, and the characteristics of teachers as a profession. The purpose of this report is to provide a statistical review of the characteristics of full-time teachers at Canadian universities for the eighties. The report is based on data from the 1979-80 Survey of University Teachers, which was conducted by the Statistics Canada. The report is organized into four main sections: (1) Introduction, (2) Demographic Characteristics, (3) Professional Characteristics, and (4) Conclusions. The first section provides an overview of the survey and the objectives of the report. The second section describes the demographic characteristics of the teachers, including age, sex, and marital status. The third section describes the professional characteristics, including years of experience, level of education, and field of study. The fourth section provides conclusions based on the findings of the survey.

A Profile of Full-time Teachers at Canadian Universities: A Statistical Review for the Eighties

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March 25, 1982



Foreword

During the last four years the socio-economic characteristics of university teachers have changed substantially, and it is worthwhile to document these changes. The author has described the characteristics of teachers at Canadian universities in a number of reports and articles.* A few years ago, the author had explored many of the strategic topics mentioned in this report, and an abridged version of it entitled "The Age Structure of Canadian University Teachers and Its Implications," was published in Interchange (Vol. 10, No. 3). These studies serve as a basis for tracing trends in university faculty. These trends assume added significance because of the demographic changes and financial restraint that have become evident in the early eighties, as well as apparent shifts in society's and government perceptions about the value of university education. In light of these circumstances, a review of faculty characteristics and their implications is mandatory.

The forthcoming volume of the Commission on Canadian Studies addresses many of the issues raised in this report and provides current quantitative information for qualitative, policy-oriented

* Among them: "The Ph.D. Dilemma in Canada: A Case Study," Canadian Higher Education in the Seventies, Economic Council of Canada, May 1972, p. 75-131; "The Ph.D. Dilemma in Canada Revisited," The Canadian Journal of Higher Education, February 1978, p. 49-92; "Some Characteristics of Full-time University Teachers, 1956-57 to 1977-78," Canadian Statistical Review, Statistics Canada, July 1978, pp. xiii-xxxviii; "The Age Structure of Canadian University Teachers and Its Implications," Interchange, Volume 10, Number 3, Ontario Institute for Studies in Education, 1979-80, p. 38-52; Three Decades of Full-time Canadian University Teachers: A Statistical Portrait, Statistics Canada, May 10, 1980, p. 295.

assessment.*

Although these statistics focus exclusively on Canadian universities, it is desirable to relate the trends to development in the United States and some European countries. University teaching and research is one of the more labour-intensive activities, which partly explains the increase in expenditures: from less than \$1 billion during the mid-sixties to more than \$4 billion today.

As with many of the author's other studies, the support of the Education Division for generating the information is gratefully acknowledged together with the clerical and typing assistance of Robert Pellarin, Christine Jolicoeur, and Karina Ott von Wahl, and the editorial help of Mary Sue Devereaux. However, any errors and omissions are the responsibility of the author.

* The two earlier volumes, To Know Ourselves, The Report of the Commission on Canadian Studies, by T.H.B. Symons, published by the Association of Universities and Colleges of Canada, 1975, had a significant impact.

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Faculty Growth Related to Enrolment

After rapid growth during the sixties and a more moderate increase during the seventies, a demographically induced decline in university enrolment may begin in 1983-84. At that time, the size of the 18-24 age group, which provides about 80% of full-time university students, will start to drop, falling from a high of almost 3.4 million to about 2.6 million by 1996. Without a sharp upturn in the enrolment rate of this age group, the number of full-time students is likely to decrease 19% over the next 15 years. This decline might lead to a possible corresponding reduction in university faculty.

Between 1962-63 and 1981-82 the number of full-time equivalent teachers rose from 10,000 to 41,000 as universities scrambled to cope with the unparalleled increase in enrolment from 156,000 to an estimated 486,000 (Table 1). Part of this faculty growth was due to the expansion of professional and graduate education, which was reflected in the substantial decline of the student/teacher ratio from 15.6 to 1 in 1962-63 to a low of 10.7 to 1 in 1972-73. It has since risen to an estimated 11.8 to 1 in 1981-82.⁽¹⁾ In recent years, the number of full-time faculty has stabilized, but growth among the provinces has been uneven, and shifts among disciplines have occurred.⁽²⁾

(1) Appendix A provides additional information on student/teacher ratios.

(2) Appendix B traces the growth of full-time faculty from 1956-57 to 1980-81 by university and discipline.

Table 1

Student/Teacher Ratio at Canadian Universities,
1962-63 to 1980-81

Year	Full-time Equivalent Enrolment	Full-time Equivalent University Teachers	Student/ Teacher Ratio
1962-63	155,781	9,983	15.6
1963-64	176,935	11,406	15.5
1964-65	198,849	13,256	15.0
1965-66	228,585	15,106	15.1
1966-67	258,600	17,992	14.4
1967-68	286,107	20,878	13.7
1968-69	299,732	23,580	12.7
1969-70	334,815	27,299	12.3
1970-71	361,661	30,755	11.8
1971-72	374,823	33,654	11.1
1972-73	372,673	34,669	10.7
1973-74	385,844	35,512	10.9
1974-75	403,589	37,428	10.8
1975-76	431,400	38,125	11.3
1976-77	440,158	39,560	11.1
1977-78	444,749	40,209	11.0
1978-79	440,087	40,806	10.8
1979-80	447,981	41,004	10.9
1980-81*	464,241	41,188	11.3
1981-82**	486,491	41,222	11.8

* Preliminary.

** Estimated.

Note: The student-teacher ratio includes part-time teachers converted to full-time equivalent by a ratio of 4 to 1. The number of part-time teachers has been estimated. Full-time equivalent enrolment data for undergraduate and graduate students have been derived by using a 3 to 1 ratio for part-time students.

Women Faculty

University teaching has long been the preserve of males. In 1958-59 only 10.7% were women, a proportion that increased to 13.0% in 1973-74 and to 15.0% in 1979-80 (Table 2). In education and fine and applied arts the proportion of full-time female faculty was about 20%. Over the years, the percentage of women teaching engineering, and mathematics and physical sciences has remained small (1.2% and 4.5%, respectively, in 1979-80).

Without special efforts or incentives to hire them, women may continue to be underrepresented among the faculty because of the expected lack of employment opportunities at Canadian universities for the next 15 years.

Age Structure

This scarcity of positions for new faculty affects another important variable - the age structure of full-time university teachers. In 1974-75, 69% of them were 35 or older (Table 3). By 1979-80, the proportion had risen to 82%. Meanwhile the under-30 group dropped from 8% of the total to 4%. The accompanying rise in the median age from 39 to 42 indicates considerable aging and a limited influx of younger teachers.

The age structure of full-time university teachers varies among disciplines, reflecting the stage of development and demand for each one. In 1980, more than 20% of the teachers in disciplines such as agriculture, forestry, dentistry, and library science

Table 2

Full-time University Teachers, by Teaching Field
and Sex, 1979-80

Teaching Field	Male (%)	Female (%)	Total (No.)
Education	76.3 (78.7)	23.7 (21.3)	3,137 9.8
Fine and Applied Arts	80.6 (81.3)	19.4 (18.7)	1,531 4.8
Humanities	81.9 (83.4)	18.1 (16.6)	5,584 17.4
Social Sciences	86.5 (89.8)	13.5 (10.2)	8,021 25.0
Agriculture and Biological Sciences	84.5 (84.3)	15.5 (15.7)	2,306 7.2
Engineering and Applied Sciences	98.8 (99.3)	1.2 (0.7)	2,440 7.6
Health Professions and Occupations	77.1 (79.4)	22.9 (20.6)	4,784 14.9
Mathematics and Physical Sciences	95.5 (95.9)	4.5 (4.1)	4,265 13.3
Total	85.0 (87.0)	15.0 (13.0)	32,068* 100.0 (28,458)

Note: Percentages in brackets show the sex distribution for 1973-74.

*Excludes 735 unclassified full-time university teachers.

Table 3

Age Distribution of Full-time University Teachers,
Selected Years

Age Group	1956-57	1968-69	1971-72	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
(In percent)									
20 - 24	1.4	1.6	0.9	0.4	0.4	0.4	0.3	0.2	0.2
25 - 29	10.5	15.5	13.8	7.7	6.9	5.8	5.2	4.5	3.9
30 - 34	19.3	22.7	23.6	22.7	21.4	19.9	18.0	15.7	14.1
Sub-Total (20-34)	31.2	39.8	38.3	30.8	28.7	26.1	23.5	20.4	18.2
35 - 39	19.1	20.1	20.2	21.9	22.3	22.6	23.4	23.7	23.3
40 - 44	16.2	14.9	15.6	17.3	17.5	18.1	18.3	19.2	19.9
45 - 49	12.1	10.8	11.2	12.6	13.2	13.8	14.4	14.9	15.5
Sub-Total (35-49)	47.4	45.8	47.0	51.8	53.0	54.5	56.1	57.8	58.7
50 - 54	9.4	6.8	7.3	9.0	9.3	9.7	10.0	10.7	11.3
55 - 59	6.7	4.6	4.6	5.2	5.7	6.2	6.6	7.1	7.7
60 - 64	5.3	3.0	2.8	3.2	3.3	3.5	3.8	4.0	4.1
Sub-Total (50-64)	21.4	14.4	14.7	17.4	18.3	19.4	20.4	21.8	23.1
total (percent)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
total Number Reported	3,870	18,556	26,674	29,672	30,498	31,280	31,895	32,357	32,500
Not Reported	-	113	99	75	61	138	37	48	58
Older than 64	84	196	200	212	225	230	235	240	245
Grand Total	3,954	18,865	26,973	29,959	30,784	31,648	32,167	32,645	32,803
Median Age	N/A	38	38	39	39	40	40	41	42

were older than 55. In contrast, fewer than 10% in such disciplines as linguistics, business, law, and psychology were 55 or older (Table 4).

Employment Opportunities

An obvious consequence of this age structure is that few university teaching jobs will open up, depending as they do on retirement, mortality and mobility.⁽³⁾ During the period 1982 to 1991, just over 13% of the full-time teachers will reach the normal retirement age of 65 (Table 5). This means that retirement will free about 4,400 full-time teaching positions. An estimated 1,650 more will be available on account of mortality. Consequently, together retirement and mortality will create around 6,000 openings: on average, about 600 a year. But this may be an overestimation. Possible financial savings and anticipation of an absolute decline in full-time equivalent enrolment might cause universities to leave these positions vacant, to replace them with temporary (term) appointments or to make greater use of part-time teachers. Such measures would further restrict employment opportunities. Besides retirement and mortality rates, the third variable affecting the need for replacements is mobility. Although no one in Canada has made a systematic attempt to find out what happens

(3) No attempt has been made to quantify the morbidity, i.e., disability, of full-time university teachers. It is assumed that the number is small.

Table 4

Age Structure of Full-time University Teachers by Discipline and Field, 1980

Selected Disciplines	Younger than 31	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66 and older	Total	Number Reported
Physical education	6.9	20.2	25.6	17.6	13.1	9.0	5.0	2.4	0.0	100.0	664
Education	1.4	7.5	18.7	20.3	19.4	16.8	10.3	4.8	0.8	100.0	2,068
Sub-total Education	2.8	10.6	28.4	19.7	17.9	14.9	9.0	4.2	0.6	100.0	2,732
Music	5.6	13.8	19.0	17.3	15.2	15.0	6.9	6.2	1.0	100.0	523
Other fine and applied arts	3.3	15.3	22.1	19.8	15.9	11.7	7.2	4.1	0.4	100.0	694
Sub-total Fine and Applied Arts	4.3	14.7	20.8	18.7	15.6	13.1	7.1	5.0	0.7	100.0	1,217
Classics	0.4	11.1	23.4	23.4	13.7	9.3	10.2	6.2	2.2	100.0	227
Modern languages	1.9	8.0	20.0	21.1	19.9	12.3	10.0	5.9	0.8	100.0	2,712
History	1.0	8.6	24.4	23.1	17.2	10.8	8.9	5.3	0.6	100.0	960
Library and record sciences	0.0	5.3	13.8	14.9	11.7	24.5	17.0	8.5	4.2	100.0	94
Linguistics	4.6	11.2	29.8	13.9	17.9	13.9	6.0	2.6	0.0	100.0	152
Media	2.5	22.3	14.9	13.2	15.7	13.2	7.4	8.3	2.5	100.0	121
Philosophy	1.6	7.1	21.2	25.1	15.2	13.1	11.0	4.1	1.8	100.0	566
Religious studies	1.4	6.4	13.7	19.3	25.4	15.3	9.1	7.0	2.4	100.0	504
Other humanities	2.5	9.3	22.0	22.9	22.0	7.6	8.5	3.4	1.7	100.0	118
Sub-total Humanities	1.7	8.4	20.6	21.3	19.0	12.5	9.8	5.7	1.2	100.0	5,454
Anthropology and archeology	0.6	16.3	27.9	19.3	13.0	11.6	7.7	3.0	0.6	100.0	338
Commerce and business administration	8.6	18.8	25.0	17.4	11.7	7.8	6.5	3.4	0.8	100.0	1,488
Economics	7.6	18.4	20.8	20.2	12.1	7.7	7.3	5.4	0.4	100.0	895
Geography	3.1	13.9	27.3	20.9	12.3	9.8	7.7	4.3	0.7	100.0	585
Law	11.1	24.4	23.2	14.0	12.3	8.0	4.2	2.4	0.5	100.0	578
Political science	2.2	14.9	26.9	23.0	12.3	8.2	7.0	4.8	0.6	100.0	667
Psychology	3.8	17.6	26.3	22.1	13.4	8.2	6.0	2.0	0.5	100.0	1,223
Social work	2.1	8.5	19.8	20.1	14.6	14.0	12.5	6.7	1.5	100.0	328
Sociology	2.2	18.6	27.0	18.6	13.8	8.6	6.6	3.8	0.8	100.0	825
Other social sciences	1.9	13.1	17.1	18.7	18.7	12.5	10.0	6.5	1.6	100.0	323
Sub-total Social Sciences	5.2	17.4	24.7	19.5	12.9	8.8	7.0	3.8	0.7	100.0	7,246
Agriculture	2.4	12.5	19.0	15.8	18.2	10.7	13.4	7.1	0.9	100.0	337
Biology	3.1	10.9	21.0	22.3	17.1	11.8	8.5	4.9	0.1	100.0	667
Botany	3.5	12.2	17.4	21.5	16.3	14.0	7.0	8.1	0.0	100.0	172
Household sciences	8.6	18.7	15.6	13.1	13.6	15.2	10.6	4.5	0.0	100.0	200
Veterinary medicine	4.2	23.3	20.1	11.1	14.8	11.1	5.8	8.5	1.1	100.0	190
Zoology	2.7	11.0	21.3	21.7	12.2	17.9	9.1	3.4	0.8	100.0	263
Other agriculture and biological sciences	0.7	12.5	24.0	19.9	15.5	11.8	7.4	6.3	1.8	100.0	271
Sub-total Agriculture and Biological Sciences	3.3	13.4	20.2	18.9	15.8	12.8	9.1	5.8	0.6	100.0	2,100
Architecture	1.6	9.0	17.0	23.9	17.6	14.9	10.6	4.8	0.5	100.0	188
Engineering science	4.1	12.2	8.2	38.8	20.4	4.1	6.1	6.1	0.0	100.0	49
Forestry	4.5	9.1	21.6	13.6	15.9	12.5	19.3	3.4	0.0	100.0	88
Engineering	2.6	8.9	17.9	23.4	18.5	14.4	9.3	4.2	0.8	100.0	1,937
Sub-total Engineering & Applied Science	2.6	9.0	17.8	23.4	18.4	14.1	9.7	4.3	0.7	100.0	2,262
Dentistry	3.0	13.1	17.8	16.4	16.4	11.7	11.1	10.4	0.0	100.0	300
Medicine	0.7	9.6	20.4	22.7	20.2	12.1	9.8	4.3	0.2	100.0	560
Pharmacy	11.7	8.8	21.9	13.9	12.4	12.4	8.8	10.2	0.0	100.0	137
Other health sciences	3.2	12.2	21.2	19.1	15.5	13.9	8.8	5.0	1.1	100.0	3,713
Sub-total Health Sciences	3.1	11.8	20.9	19.2	16.0	13.5	9.0	5.4	0.9	100.0	4,710
Mathematics	2.8	9.7	23.2	26.4	15.4	11.7	6.7	3.4	0.7	100.0	1,131
Chemistry	2.1	8.4	20.5	24.6	18.2	13.3	7.8	4.7	0.5	100.0	851
Geology and related	4.5	10.2	15.7	23.1	21.0	12.9	7.6	3.9	1.0	100.0	381
Physics	1.5	5.3	15.4	28.2	20.9	12.7	10.4	4.6	0.9	100.0	864
Other mathematics and physical sciences	7.4	18.2	28.2	20.0	10.5	8.5	5.2	1.6	0.4	100.0	732
Sub-total Mathematics & Physical Sciences	3.4	10.1	21.1	24.9	16.8	11.8	7.5	3.7	0.7	100.0	3,959
Total	3.4	12.2	21.4	20.7	16.2	12.0	8.4	4.7	0.8	100.0	29,698
Not specified	4.1	11.0	18.5	16.6	16.8	12.9	14.0	5.6	0.4	100.0	468
Grand Total	3.4	12.2	21.4	20.7	16.2	12.1	8.5	4.7	0.8	100.0	30,152
Number Reported	1,020	3,668	6,440	6,220	4,886	3,630	2,565	1,409	239		

Table 5

Projected Replacement Positions Available for Full-time
University Teachers, 1982-1991

	Retirements (No.)	Retirement rate (%)	Mortality (No.)	Mortality rate (%)	Total replacement (No.)	Replacement rate (%)
1982	243	0.7	165	0.5	408	1.2
1983	265	0.8	165	0.5	430	1.3
1984	309	0.9	165	0.5	474	1.4
1985	388	1.2	165	0.5	553	1.7
1986	445	1.4	165	0.5	610	1.9
1987	474	1.4	165	0.5	639	1.9
1988	493	1.5	165	0.5	658	2.0
1989	555	1.7	165	0.5	720	2.2
1990	597	1.8	165	0.5	762	2.3
1991	650	1.9	165	0.5	8.5	2.4
Ten-year total	4,419	13.3	1,650	5.0	6,069	18.3

Note: This projection is based on a stock figure of 32,950 full-time university teachers in 1980-81 and assumes zero net mobility. The mortality rate is an approximation. The stock figure is held constant for the projection period, an assumption that must be qualified if the universities, for financial and other reasons, reduce the total number of full-time faculty over the next 10 years.

to faculty who resign, there is evidence that mobility between universities and other employment sectors (and vice versa) is declining, not a surprising phenomenon in a strained labour market.⁽⁴⁾ Therefore, zero net mobility has been assumed.

In this context, it is useful to review the previous employment sector of university teachers. Close to 50% were employed at another university, almost 25% were students, and 15% came from government or the private sector (Table 6). The fact that universities frequently hire from other employment sectors further reduces employment opportunities for graduating Ph.D. students and also adds to the difficulty of relating the demand for university teachers to the number of students who will finish graduate school.

The decline in mobility is also apparent in Table 7, which shows for three selected years (1973-74, 1976-77, and 1979-80) changes in the duration of appointments. In 1973-74, only 19% of the full-time faculty had held their position for more than nine years. By 1979-80, this percentage had increased to 45%. Conversely, whereas 57% had been at their university for less than five years in 1973-74, this figure fell to 33% by 1979-80. Expressed differently, median years since appointment have increased from five to nine within a six-year span. These factors limit the replacement demand.

(4) The province of Ontario had undertaken a job mobility study for academics which was published by the Ministry of Education (Linda K. Moffat) Room at the Bottom, 1980, p. 251.

Table 6

Full-time University Teachers by Previous Employment Sector and Country of Citizenship, 1979-80

Previous employment sector	Canada		United States		United Kingdom		Other Commonwealth		Belgium and France		Other Europe		Sub-total		Not reported		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
University	9,254 (69.4)	42.5	2,206 (16.5)	63.1	825 (6.2)	57.8	334 (2.5)	59.8	167 (1.3)	55.5	309 (2.3)	66.2	13,332 (100.0)	46.9	57	42.5	13,389	46.9
Other Education	1,791 (84.6)	8.2	154 (7.3)	4.4	74 (3.5)	5.2	25 (1.2)	4.5	27 (1.3)	9.0	27 (1.3)	5.8	2,116 (100.0)	7.5	10	7.5	2,126	7.5
Student	5,404 (80.9)	24.8	758 (11.3)	21.7	241 (3.6)	16.9	107 (1.6)	19.2	56 (0.8)	18.6	59 (0.9)	12.6	6,684 (100.0)	23.5	38	28.4	6,722	23.5
Health Sciences	1,095 (82.0)	5.0	60 (4.5)	1.7	99 (7.4)	6.9	36 (2.7)	6.5	8 (0.6)	2.6	16 (1.2)	3.4	1,335 (100.0)	4.7	2	1.5	1,337	4.7
Government (including military)	1,781 (89.5)	8.2	98 (4.9)	2.8	42 (2.1)	2.9	22 (1.1)	3.9	24 (1.2)	8.0	13 (0.7)	2.8	1,990 (100.0)	7.0	10	7.5	2,000	7.0
Industry and Self-employment	1,904 (86.0)	8.7	123 (5.5)	3.5	98 (4.4)	6.9	24 (1.1)	4.3	17 (0.8)	5.6	31 (1.4)	6.6	2,215 (100.0)	7.8	14	10.4	2,229	7.8
Other	563 (76.1)	2.6	97 (13.1)	2.8	49 (6.6)	3.4	10 (1.4)	1.8	2 (0.3)	0.7	12 (1.6)	2.6	740 (100.0)	2.6	3	2.2	743	2.6
Sub-total	21,792 (76.7)	100.0	3,496 (12.3)	100.0	1,428 (5.0)	100.0	558 (2.0)	100.0	301 (1.1)	100.0	467 (1.6)	100.0	28,412 (100.0)	100.0	134	100.0	28,546	100.0
Not reported	3,135 (77.3)		397 (9.8)		108 (2.7)		51 (1.2)		143 (3.5)		130 (3.2)		4,056 (100.0)		201		4,257	
Total	24,927 (76.8)		3,893 (12.0)		1,536 (4.7)		609 (1.9)		444 (1.4)		597 (1.8)		32,468 (100.0)		335		32,803	

Note: Percentages in brackets show the citizenship distribution by country.

Table 7

Full-time University Teachers, by Years Since Appointment,
1973-74, 1976-77, and 1979-80

Years	1973/74		1976/77		1979/80	
	No.	%	No.	%	No.	%
Less than 1 (0)	2,460	8.9	2,659	8.5	2,160	6.7
1	2,308	8.4	2,399	7.7	1,862	5.7
2	2,580	9.4	2,059	6.6	1,717	5.3
3	2,878	10.5	1,801	5.8	1,576	4.9
4	2,978	10.8	1,733	5.5	1,764	5.5
5	2,467	9.0	2,248	7.2	1,610	5.0
Sub-total (0 - 5)	15,671	57.0	12,899	41.3	10,689	33.1
6	2,261	8.2	2,406	7.7	1,499	4.7
7	1,829	6.7	2,676	8.6	1,482	4.6
8	1,523	5.5	2,287	7.3	2,011	6.2
9	1,034	3.8	2,103	6.7	2,159	6.7
Sub-total (0 - 9)	22,318	81.2	22,371	71.6	17,840	55.3
Over 9	5,166	18.8	8,851	28.4	14,435	44.7
Total	27,484	100.0	31,222	100.0	32,275	100.0
Not reported	915		426		528	
Grand total	28,399		31,648		32,803	
Median years	5		7		9	

Source: Statistics Canada, Teachers in Universities (81-241), Table 4, selected years.

Another complication is that the labour market for university teachers is international. In the past, Canadian universities have relied extensively on foreign faculty.⁽⁵⁾ In 1979-80, one out of four full-time university teachers held foreign citizenship, although the majority were permanent residents (landed immigrants) of Canada.

In most disciplines, the number of retirements over the next five years will be small. From Table 8 it is possible to determine that between 1982 and 1986, 1,881 full-time faculty members will reach the normal retirement age of 65. A few examples - 17 in geology, 20 in classics, 15 in pharmacy, and 38 in sociology. These figures must be compared with the anticipated supply of Ph.D. graduates during the same five years - 95 in geology, 35 in classics, 40 in pharmacy and 150 in sociology.⁽⁶⁾ Furthermore, the chances of new graduates securing a university teaching position may be even slimmer than these numbers suggest. As Table 8 illustrates, not everyone who reaches 65 retires. It should also be remembered that all university appointments do not necessarily go to Ph.D.-holders, and in some cases, foreign professors will be hired as well as those from other employment sectors.

(5) The author has examined the question of foreign faculty in two reports: The Issue of Foreign University Teachers at Canadian Universities, Statistics Canada, May 1, 1977, and Foreign Academics at Canadian Universities: A Statistical Perspective on New Appointments During the Seventies, Statistics Canada, December 10, 1981, pp. 40.

(6) These supply data exclude Canadians obtaining their Ph.D.'s abroad and potential immigrants with doctorates. Moreover, for some disciplines there are alternative employment opportunities in government and the private sector.

Table 8

Full-time University Teachers Older than 56 by Discipline and Field, 1980

Selected Disciplines	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71 and older
Physical education	5	4	9	8	7	2	3	5	5	1	0	0	0	0	0	0
Education	51	39	47	43	33	28	20	12	22	17	11	3	2	0	0	0
Sub-total Education	56	43	56	51	40	30	23	17	27	18	11	3	2	0	0	0
Music	6	11	8	6	5	8	8	9	5	2	2	1	1	0	0	1
Other fine and applied arts	11	8	11	13	7	11	5	2	4	6	1	0	1	0	0	1
Sub-total Fine and Applied Arts	17	19	19	19	12	19	13	11	9	8	3	1	2	0	0	2
Classics	6	4	5	4	4	5	3	4	0	2	5	0	0	0	0	0
Modern languages	64	59	43	50	55	38	36	35	30	24	8	4	6	1	1	1
History	16	19	15	17	18	15	11	12	7	6	1	3	1	0	0	1
Library and records science	6	2	2	2	4	3	2	3	0	0	1	1	0	1	1	0
Linguistics	2	1	3	1	1	1	0	0	1	2	0	0	0	0	0	0
Media	1	4	1	2	1	2	4	0	3	1	1	0	0	0	1	1
Philosophy	17	13	12	9	11	5	5	5	3	5	4	4	0	0	0	2
Religious studies	12	7	8	9	10	13	8	4	7	3	5	3	2	1	0	1
Other humanities	3	3	2	2	0	2	0	1	1	0	1	1	0	0	0	0
Sub-total Humanities	127	112	91	96	104	84	69	64	53	48	26	17	12	3	3	6
Anthropology and archaeology	7	8	5	3	3	2	2	4	1	1	2	0	0	0	0	0
Commerce and business administration	20	19	16	26	15	16	15	7	11	2	3	3	2	2	1	1
Economics	17	17	14	8	9	18	7	7	9	7	2	1	0	1	0	0
Geography	11	6	9	8	11	7	5	4	6	3	3	0	0	0	0	1
Law	3	8	5	4	4	1	1	2	5	5	1	0	2	0	0	0
Political science	9	13	4	10	11	4	12	7	5	4	3	1	0	0	0	0
Psychology	22	13	13	11	15	6	3	7	4	5	1	4	1	0	0	0
Social work	12	8	6	8	7	5	5	4	4	4	2	3	0	0	0	0
Sociology	13	15	10	8	8	9	5	8	7	2	3	1	1	2	0	0
Other social sciences	6	4	7	6	9	6	4	2	2	4	2	0	0	0	0	2
Sub-total Social Sciences	120	111	89	92	92	74	59	52	54	37	22	13	6	5	1	4
Agriculture	6	6	9	11	13	11	2	7	3	1	1	1	0	0	1	0
Biology	19	11	7	11	9	11	9	7	4	2	0	1	0	0	0	0
Botany	1	4	3	2	2	2	7	3	0	2	0	0	0	0	0	0
Household sciences	3	5	7	5	1	3	2	2	1	1	0	0	0	0	0	0
Veterinary medicine	2	3	4	2	0	5	6	3	0	2	1	1	0	0	0	0
Zoology	7	3	4	5	5	3	3	0	0	3	1	1	0	0	0	0
Other agriculture and biological sciences	6	4	5	3	2	7	2	3	2	3	3	2	0	0	0	0
Sub-total Agriculture and Biological Sciences	44	36	39	39	32	42	31	25	10	14	6	6	0	0	1	0
Architecture	5	3	8	2	2	3	1	0	3	2	0	0	0	1	0	0
Forestry	4	5	3	2	3	0	3	0	0	0	1	0	0	0	0	0
Engineering	45	38	33	35	32	22	19	18	13	13	7	4	1	1	0	2
Sub-total Engineering & Applied Science	54	46	44	39	37	25	23	18	16	15	8	4	1	2	0	2
Dentistry	6	7	7	6	7	9	6	8	4	4	0	0	0	0	0	0
Medicine	18	11	11	11	4	10	2	5	2	5	0	0	0	0	1	0
Pharmacy	3	0	4	1	4	2	5	3	3	1	0	0	0	0	0	0
Other health sciences	76	74	64	50	61	56	34	29	36	32	14	13	6	4	1	3
Sub-total Health Sciences	103	92	86	68	76	77	47	45	45	42	14	13	6	4	2	3
Mathematics	15	21	13	14	12	6	8	10	8	6	6	1	1	0	0	0
Chemistry	18	18	15	8	7	10	12	7	6	5	3	1	0	0	0	0
Geology and related	6	8	7	7	1	2	7	0	3	3	4	0	0	0	0	0
Physics	13	30	12	21	14	10	7	7	8	8	4	3	1	0	0	0
Other mathematics and physical sciences	9	8	8	5	8	2	4	4	1	1	1	2	0	0	0	0
Sub-total Mathematics & Physical Sciences	61	85	55	55	42	30	38	28	26	23	18	7	2	0	0	0
Total	582	544	479	459	435	381	303	260	240	205	108	64	31	14	7	17
Not specified	15	11	14	15	10	7	6	5	3	5	1	0	1	0	0	0
Grand Total	597	555	493	474	445	388	309	265	243	210	109	64	32	14	7	17

Table 9
Supply of Doctoral Degrees from Canadian Universities, 1982 to 1986

Discipline	1980-81		Full-time Less Foreign Students	Withdrawal Rate in Percentage	Balance	Length of Study in Years	Degrees Granted Each Year 1982-1986*
	Full-time Doctoral Students	Foreign Doctoral Students					
<u>Education</u>	971	148	823	50	412	3	137
<u>Fine and Applied Arts</u>	97	11	86	50	43	4	11
Classics	47	8	39	30	27	4	7
English	486	102	384	50	192	4	48
French	148	20	128	50	64	4	16
Other Languages	211	39	172	50	86	4	22
History	323	45	278	45	153	4	38
Library and Records Science	20	4	16	50	8	4	2
Linguistics	83	17	66	50	33	4	8
Media Studies	26	6	20	50	10	4	3
Philosophy	299	86	213	50	107	4	27
Religious Studies	172	29	143	50	72	4	18
Other Humanities	46	10	36	50	17	4	4
<u>Sub-total Humanities</u>	1,861	366	1,495	50	769	4	193
Anthropology and Archaeology	196	34	162	50	81	4	20
Commerce and Business Administration	134	24	110	50	55	4	14
Economics	468	190	278	50	139	4	35
Geography	159	62	97	40	58	4	15
Law	31	14	17	50	9	4	2
Political Science	215	56	159	55	72	4	18
Psychology	807	109	698	50	349	4	87
Social Work	39	0	39	50	20	4	5
Sociology	287	48	239	50	120	4	30
Other Social Sciences	166	82	84	50	42	4	11
<u>Sub-total Social Sciences</u>	2,502	619	1,883	50	945	4	237
<u>Total Human Sciences</u>	5,431	1,144	4,287	50	2,169	3 to 4	578
Agriculture	241	98	143	25	107	3	36
Biology	381	80	301	40	181	3	60
Botany	63	13	50	40	30	3	10
Household Science	24	5	19	50	10	3	3
Veterinary Medicine	33	7	26	30	18	3	6
Zoology	212	44	168	40	101	3	34
Other Agriculture & Biological Sciences	100	22	78	20	62	3	21
<u>Sub-total Agriculture & Biological Sciences</u>	1,054	269	785	35	509	3	170
Chemical Engineering	171	67	104	45	47	3	16
Civil Engineering	131	51	80	45	44	3	15
Electrical Engineering	206	80	126	45	69	3	23
Mechanical Engineering	106	41	65	45	36	3	12
Engineering Science	38	15	23	45	13	3	4
Forestry	41	16	25	45	14	3	5
Other Engineering & Applied Sciences	215	84	131	45	86	3	29
<u>Sub-total Engineering & Applied Sciences</u>	908	354	554	45	309	3	104
Dentistry	11	1	10	30	7	3	2
Medicine	482	63	419	30	293	4	73
Pharmacy	38	5	33	30	23	3	8
Other Health Sciences	136	18	118	30	83	4	21
<u>Sub-total Health Sciences</u>	667	87	580	30	406	3 to 4	104
Computer Sciences	127	36	91	30	64	3	21
Mathematics	243	98	145	30	102	3	34
Chemistry	573	210	363	30	254	3	85
Geology	175	70	105	45	58	3	19
Physics	340	77	263	35	171	3	57
Other Mathematics and Physical Sciences	97	34	63	35	41	3	14
<u>Sub-total Mathematics & Physical Sciences</u>	1,555	525	1,030	35	690	3	230
<u>Total Sciences</u>	4,184	1,235	2,949	25 to 50	1,914	3	608
<u>Total</u>	9,615	2,379	7,236	45	4,083	-	1,186
Not Specified	16	5	11	50	6	3	2
<u>Grand Total</u>	9,631	2,384	7,247	45	4,089	3 to 4	1,188

*Excludes those Ph.D. recipients who were part-time doctoral students (3,340) and who, in all likelihood, are already part of the labour force. The estimated annual number for this group is 250 Ph.D. graduates, most of them in the human sciences.

Note: The rationale and methodology for this simulation exercise has been outlined in the following publications:
"The Ph.D. Dilemma in Canada: A Case Study", *Canadian Higher Education in the Seventies*, Economic Council of Canada, May 1972, pp. 75-131; "The Ph.D. Dilemma in Canada Revisited", *The Canadian Journal of Higher Education*, February 1978, pp. 49-92; *Doctoral Enrolment and Graduation Patterns at Canadian Universities During the Seventies: A Statistical Documentation by Discipline*, Statistics Canada, April 6, 1981, p. 71.

Foreign Faculty

The proportion of newly appointed full-time faculty with Canadian citizenship increased from 60% in 1972-73 to 77% in 1979-80 (Table 10). However, for a variety of reasons, Canadian universities will have to rely on foreign faculty. In certain disciplines for which demand is heavy, such as management and administrative studies, Canada produces an insufficient number of Ph.D.'s. Moreover, not enough senior persons with strong research experience are available in Canada. In addition, universities are by nature internationally oriented. Therefore, Canadian universities will continue to rely, although at a decreasing rate, upon foreign faculty. The extent to which this has been true in the past is shown in Table 11.

Although it is not infallible, the geographic origin of the teachers' first degree can serve as a proxy indicator of the cultural orientation.

Overall, in 1979-80, 59% had obtained their first degree in Canada, including those who might have been permanent residents (landed immigrants). The second largest group, 17%, had graduated in the United States, and 11.0% had earned their first degree in the United Kingdom. In absolute numbers, 13,352 of the 32,289 full-time faculty had obtained their

Table 10

Proportion of Full-time University Teachers with Canadian Citizenship,
1972-73 to 1979-80

Year	All Faculty	New Appointments
1972-73	65.1	59.6
1973-74	66.4	65.3
1974-75	67.5	62.4
1975-76	70.6	64.7
1976-77	72.6	65.8
1977-78	73.9	69.0
1978-79	76.1	73.7
1979-80	76.7	76.6

Source: Statistics Canada (81-244), Teachers in Universities, Table 1,
selected years.

Table 11

Geographic Area of First Degree of Full-time University Teachers by Teaching Field, 1979-80

Teaching field	Canada	United States	United Kingdom	Other Commonwealth	France and Belgium	Other Europe	Other	Sub-total	Not reported	Total
Education	2,214 (70.8)	524 (16.8)	166 (5.3)	70 (2.2)	55 (1.8)	50 (1.6)	48 (1.5)	3,127 (100.0)	40	3,167
Fine and Applied Arts	644 (46.6)	462 (33.4)	124 (9.0)	25 (1.8)	21 (1.5)	78 (5.7)	28 (2.0)	1,382 (100.0)	158	1,540
Humanities	2,951 (52.9)	1,244 (22.3)	631 (11.3)	74 (1.3)	250 (4.5)	291 (5.2)	138 (2.5)	5,579 (100.0)	62	5,641
Social Sciences	4,600 (57.1)	1,718 (21.3)	646 (8.0)	284 (3.5)	253 (3.1)	249 (3.1)	313 (3.9)	8,063 (100.0)	70	8,133
Sub-total - Human Sciences	10,409 (57.3)	3,948 (21.8)	1,567 (8.6)	453 (2.5)	579 (3.2)	668 (3.7)	527 (2.9)	18,151 (100.0)	330	18,481
Agriculture and Biological Sciences	1,387 (60.3)	358 (15.6)	264 (11.5)	98 (4.2)	38 (1.6)	90 (3.9)	66 (2.9)	2,301 (100.0)	14	2,315
Engineering and Applied Sciences	1,425 (58.4)	155 (6.3)	307 (12.6)	138 (5.6)	75 (3.1)	178 (7.3)	164 (6.7)	2,442 (100.0)	20	2,462
Health Sciences	3,162 (66.8)	323 (6.8)	593 (12.5)	175 (3.7)	52 (1.1)	229 (4.9)	200 (4.2)	4,734 (100.0)	57	4,791
Mathematics and Physical Sciences	2,306 (54.0)	525 (12.3)	608 (14.2)	279 (6.5)	83 (1.9)	264 (6.2)	209 (4.9)	4,274 (100.0)	32	4,306
Sub-total - Sciences	8,280 (60.2)	1,361 (9.9)	1,772 (12.9)	690 (5.0)	248 (1.8)	761 (5.5)	639 (4.7)	13,751 (100.0)	123	13,874
Total	18,689 (58.6)	5,309 (16.6)	3,339 (10.5)	1,143 (3.6)	827 (2.6)	1,429 (4.5)	1,166 (3.6)	31,902 (100.0)	453	32,355
Specialization not reported	248 (64.1)	50 (12.9)	48 (12.4)	16 (4.1)	5 (1.3)	12 (3.1)	8 (2.1)	387 (100.0)	61	448
Grand Total	18,937 (58.6)	5,359 (16.6)	3,387 (10.5)	1,159 (3.6)	832 (2.6)	1,441 (4.5)	1,174 (3.6)	32,289 (100.0)	514	32,803

first degree abroad. However, variations among the eight fields were substantial: from a low of 29% in education to a high of 53% in fine and applied arts. Compared with the social sciences and humanities, a disproportionately large number in the natural and physical sciences had earned their first degree in countries other than Canada, the United States, or the United Kingdom.

At the discipline level, in some social sciences such as archaeology and anthropology, American degrees outnumbered Canadian. This contrasts with most of the applied disciplines, in which better than two-thirds of the teachers had graduated from Canadian universities.

Doctoral Qualifications

Table 12 shows the percentage of teachers with doctoral qualifications in six selected years, by field and discipline. The overall proportion increased from 42% in 1958-59, to 49% in 1968-69, to 60% in 1976-77, and to 62% in 1979-80. Qualifications varied substantially among disciplines, reflecting differences between theoretical and applied fields. In many of the latter a Ph.D. is not a prerequisite for teaching. In 1979-80 an average of 85% of teachers in the physical sciences had doctorates, ranging from 80% in mathematics to 90% in chemistry. Proportions were low in applied disciplines like nursing (6%), architecture (10%), fine and applied arts (28%), law (17%), and dentistry (21%).

Table 12

Doctoral Qualifications of Full-time University Teachers,
by Discipline and Field, Selected Years

Teaching Field and Discipline	58/59	63/64	68/69	73/74	76/77	79/80
Physical education	6.1	8.4	11.1	29.3	38.4	44.5
Education	27.0	27.5	35.3	43.5	47.9	56.6
Sub-total Education	20.7	22.6	29.9	40.1	45.8	53.3
Music	15.2	13.2	15.5	22.8	25.6	27.7
Fine and Applied Arts	17.6	21.6	21.0	15.9	17.7	28.6
Sub-total Fine Arts	16.5	17.7	18.6	18.7	20.8	28.4
Classics	46.6	37.2	47.3	62.0	67.4	72.3
History	55.3	49.2	54.3	63.0	77.1	81.9
Library and Records Science	0.0	16.0	11.3	23.9	28.4	27.1
Mass Media Studies	0.0	0.0	0.0	17.7	19.0	25.9
English	40.3	37.9	42.9	60.7	70.0	72.4
French	34.9	31.7	33.2	47.8	58.8	65.6
German	80.0	55.7	51.7	72.3	76.6	80.0
Spanish	20.0	28.6	34.5	52.3	69.4	76.2
Other Modern Languages	41.5	41.8	43.1	49.9	59.9	70.6
Philosophy	55.2	52.5	48.5	67.0	75.7	81.4
Religious Studies	41.0	43.4	49.8	60.1	67.2	73.6
Sub-total Humanities	44.9	41.4	44.2	58.9	67.4	72.0
Anthropology (including Archeology)	58.3	60.0	54.1	61.8	71.9	79.0
Area Studies	38.5	38.5	42.3	62.8	54.0	51.9
Commerce, Business Administration	11.8	17.1	25.6	39.1	41.5	43.8
Economics	47.4	44.4	52.0	63.8	70.4	71.9
Geography	51.9	48.5	54.3	66.7	74.2	76.7
Law	17.1	18.0	15.5	16.5	18.1	16.5
Political Science	45.5	50.0	46.4	58.6	68.8	74.1
Psychology	60.7	69.8	69.7	77.0	81.1	83.0
Social Work	14.5	14.6	15.8	23.4	29.1	35.0
Sociology	40.0	50.9	47.3	55.7	66.1	70.4
Sub-total Social Sciences	36.9	41.2	45.9	55.4	60.3	62.4
Agriculture	53.3	64.7	70.3	79.8	83.4	86.1
Biology	59.4	65.4	76.1	83.1	83.4	85.7
Botany	81.0	81.4	85.8	89.2	91.7	90.2
Household Science and related	3.6	8.7	17.5	38.9	44.5	48.4
Veterinary Medicine and Sciences	20.4	17.6	29.8	40.7	47.2	47.0
Zoology	61.6	61.6	71.2	89.2	90.0	92.0
Sub-total Biological Sciences	51.0	57.1	66.9	76.1	78.3	80.4
Architecture	2.1	6.0	8.9	7.7	10.1	9.5
Chemical Engineering	63.8	70.5	83.1	87.2	89.5	88.6
Civil Engineering	14.8	22.7	45.6	57.8	67.7	71.9
Electrical Engineering	21.9	28.2	59.2	72.7	68.5	69.8
Forestry	32.1	25.0	46.3	50.6	N/A	61.7
Mechanical Engineering	10.6	24.3	52.0	63.6	64.4	67.7
Mining Engineering	42.6	58.7	72.8	72.6	60.0	56.0
Sub-total Applied Sciences	20.8	29.9	51.4	59.7	61.2	62.5
Dentistry	7.9	12.7	23.2	18.7	22.3	20.9
Medicine and related	26.9	29.7	23.7	N/A	N/A	31.4
Nursing	1.6	2.0	3.2	3.9	N/A	6.1
Pharmacy	51.6	59.3	76.9	79.6	82.4	78.4
Sub-total Health Sciences	23.3	26.4	30.5	N/A	N/A	35.0
Mathematics	48.9	47.3	60.5	78.2	80.5	80.4
Chemistry	76.7	81.0	85.9	90.3	91.0	90.3
Geology	74.5	80.0	87.3	86.9	90.5	90.2
Physics	69.8	67.8	81.2	86.6	88.4	89.0
Sub-total Physical Sciences	65.4	66.1	75.9	82.0	84.6	85.4
Total	41.7	43.4	49.4	56.8	60.0	61.6

The percentage of teachers with doctorates has increased considerably in some disciplines. For example, in 1958-59, just 12% of the business faculty were Ph.D.-holders; this had increased to 44% by 1979-80. Since a sizeable number of teachers are still completing their studies, the proportion with doctorates in many of the human science disciplines is expected to grow.

Academic Rank Distribution

Academic rank distribution is related to teachers' age structure. In 1956-57, 52% of the full-time teachers were at the senior ranks (full- and associate professor) (Table 13). During the expansionary sixties, this percentage fell to a low of 44% (in 1967-68). It then rose gradually to 70% by 1979-80. Conversely, the proportions in the two junior ranks (assistant professor and instructor/lecturer) declined from 56% of the total in 1967-68, to 30.0% in 1979-80. Of particular note is the decrease of the rank below assistant professor from 19% in 1967-68 to the present 6%, indicating a limited influx of junior faculty over the last ten years. If these trends continue, assuming normal progression through the ranks as well as no net additions to full-time academic staff, the proportion at the two senior levels could rise to about 80% within a few years, even with a slower promotion rate. (7)

(7) The projected replacement positions and the projections by rank in Table 13 are based on a static simulation. This somewhat simplistic approach draws attention to the dilemmas more clearly than would a dynamic flow model. Another justification for using this approach is that the impact of new teachers hire in replacement positions at junior ranks will not be evident in the overall age structure and rank distribution for many years.

Table 13

Actual and Projected Rank Distribution of University Teachers,
1956-57, 1967-68 to 1986-87 (Percentages)

Academic year	Full Professor	Associate Professor	Sub-total 2 Senior Ranks	Assistant Professor	Rank below Assistant Professor	Sub-total 2 Junior Ranks
Actual						
1956-57	28.1	24.1	52.2	28.6	19.2	47.8
1967-68	18.5	25.2	43.7	37.0	19.3	56.3
1968-69	18.5	26.3	44.8	37.9	17.3	55.2
1969-70	18.6	26.8	45.4	38.0	16.6	54.6
1970-71	18.8	27.2	46.0	37.7	16.3	54.0
1971-72	21.3	29.1	50.4	37.4	12.2	49.6
1972-73	21.7	29.9	51.6	37.2	11.1	48.3
1973-74	23.2	32.5	55.7	34.7	9.8	44.5
1974-75	24.5	34.2	58.7	33.2	8.1	41.3
1975-76	25.7	35.6	61.3	31.3	7.4	38.7
1976-77	26.7	37.1	63.8	29.9	6.5	36.4
1977-78	27.8	37.8	65.6	28.1	6.3	34.4
1978-79	28.7	39.3	68.0	26.2	5.8	32.0
1979-80	30.0	39.5	69.5	24.8	5.7	30.5
Projected						
1980-81	31.0	40.0	71.0	23.4	5.6	29.0
1981-82	32.0	40.5	72.5	22.0	5.5	27.5
1982-83	33.0	41.0	74.0	20.6	5.4	26.0
1983-84	34.0	41.5	75.5	19.2	5.3	24.5
1984-85	35.0	42.0	77.0	17.8	5.2	23.0
1985-86	36.0	42.5	78.5	16.4	5.1	21.5
1986-87	37.0	43.0	80.0	15.0	5.0	20.0

Note: Based on trends in the late seventies, it has been estimated that one additional percent of the university cohort will be promoted from associate to full professor, and 0.5 percent from assistant to associate professor. Under these assumptions, the two junior ranks decline proportionately.

As a result, a larger share of university budgets would have to be allocated to instructional expenditures, the main component of which is teachers' salaries. This percentage has already increased from 32% in 1966-67 to 47% in 1979-80, and could account for about 50% of university budgets in the near future (Table 14).⁽⁸⁾ This table also shows the rapid growth of total university expenditures: from less than \$1 billion in 1966-67 to close to \$4 billion in 1979-80.

Salary Structure

The rise of instructional expenditures has mirrored increasing faculty salaries. The median salary of all full-time university teachers tripled between 1967-68 and 1980-81 from \$11,400 to an estimated \$34,200 (Table 15). The median for full professors went from \$17,100 to \$44,300; for assistant professors, from \$10,200 to \$26,300. The financial implications of the rising percentage of teachers who have entered and will enter the two senior ranks are obvious. In this context, the growth of median salary has been compared with that of the Consumer Price Index (CPI). Using 1967-68 as a base of 100.0, the median salary for all academic ranks increased to 299.8 in 1980-81, while the CPI rose to 243.5.⁽⁹⁾

(8) Capital expenditures are included in the relationship between instructional expenditures to total expenditures. Since investment in buildings and equipment can be more easily controlled, there is some flexibility to shift resources to operating expenditures.

(9) Age, years of experience, academic rank and discipline affect the salary of university teachers; thus, Table 15 has to be interpreted cautiously.

Table 14

Instructional Expenditures of University Education,
1966-67 to 1979-80

Year	Total Expenditures*	Instructional Expenditures**	Percent of Total Expenditures
	(\$'000)	(\$'000)	
1966-67	314,345	991,647	31.7
1967-68	406,034	1,243,411	32.7
1968-69	487,432	1,359,972	35.8
1969-70	599,118	1,603,781	37.4
1970-71	686,227	1,790,812	38.3
1971-72	737,344	1,864,517	39.5
1972-73	790,747	1,867,801	42.3
1973-74	872,110	2,029,910	43.0
1974-75	1,028,783	2,372,171	43.4
1975-76	1,236,827	2,760,542	44.8
1976-77	1,387,093	2,976,710	46.6
1977-78	1,554,698	3,377,985	46.0
1978-79	1,678,539	3,624,705	46.3
1979-80	1,849,369	3,948,532	46.8

* Includes also expenditures for maintenance, libraries, administration, scholarships, research, student assistance and capital.

** Includes academic and non-academic salaries, fringe benefits and supplies.

Table 15

Median Salary of Full-time University Teachers, by Rank, 1967-68 to 1980-81

	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81*
Full Professor	\$17,081	\$18,516	\$19,870	\$21,504	\$22,579	\$23,950	\$25,200	\$27,400	\$31,500	\$34,100	\$36,500	\$39,100	\$41,500	\$44,342
Associate Professor	12,998	14,058	15,012	16,057	16,848	17,550	18,550	20,000	23,100	25,500	27,700	29,550	31,650	33,425
Assistant Professor	10,228	11,030	11,837	12,701	13,321	13,900	14,700	16,000	18,550	20,450	22,000	23,300	25,000	26,278
Rank below Assistant Professor	7,990	8,649	9,441	10,002	10,521	11,050	11,800	12,850	14,850	16,300	17,750	18,725	20,225	20,900
Other	10,425	11,581	14,050	12,545	13,017	11,900	13,000	15,450	17,550	19,750	22,350	24,000	26,375	33,816
Total	11,403	12,224	13,265	14,248	15,084	16,000	17,150	18,950	22,350	24,900	27,250	29,400	31,800	34,190
Salary Index (total)	100.0	107.2	116.3	124.9	132.3	140.3	150.4	166.2	196.0	218.4	239.0	257.8	278.9	299.8
Consumer Price Index (Calendar Year)	100.0	104.0	108.8	112.4	115.6	121.2	130.2	144.5	160.1	172.1	185.9	202.5	221.0	243.5
Higher Education Price Index for the U.S. (Kent Halstead, U.S. Government)	100.0	106.0	113.2	121.0	128.6	135.8	143.0	153.1	166.1	177.2	188.7	201.3	216.9	238.3

* Preliminary and excluding Quebec universities.

To maintain this level of remuneration in the future, a larger share of university budgets will have to be allocated to teachers' salaries. But at the same time, demands are from other expenditure sectors, such as non-academic salaries, administration, libraries, maintenance, research, and student assistance, this trend could give cause for concern. An important factor in the higher education expenditure pattern is that university education is a labour-intensive service industry whose rate of inflation has been higher than that of the general economy. Other factors that will affect salaries are tenure regulations and university teachers' unions, which are likely to emphasize economic security.

As alternatives, some universities have already started to reduce the number of full-time faculty and/or have decided not to replace those on sabbatical leave. Other institutions are substituting part-time for full-time teachers, at substantial savings. Nevertheless, the cost per student, in constant dollars, is likely to grow. Opportunities for adjustment vary by size of institution. Small universities have less flexibility in adjusting to these new circumstances.

The anticipated expansion of university enrolment over the next two years will augment these pressures. But faculty and physical facilities cannot be increased to meet this short-term demand, because the universities will in all likelihood

experience a substantial decline in full-time enrolment from the mid-eighties to the nineties. This means a potential excess of faculty (in some disciplines but not in others) and physical plant.

Concluding Observations

Changes in the enrolment pattern, age structure, rank distribution and salary level of full-time faculty and their consequences are affecting Canadian universities. Ironically, this coincides with the curtailment of government expenditures.

However despite expenditure cutbacks during the last four years, the number of full-time teachers increased by 1,000. With few exceptions, most Canadian universities had more full-time faculty in 1980-81 than in the preceding year. But growth patterns today are much different from the late sixties and early seventies when numbers increased by 2,000 annually. Recent gains may be partly due to continued strong demand for certain professional disciplines, such as business and the health sciences, the faculty which increased each year by more than 100. At the same time, the traditional arts and sciences disciplines did not suffer as marked a decline as had been feared by some in the university community. This may reflect tenure regulations and a certain inertia in the system.

Nonetheless, enrolment in recent years has grown more rapidly than full-time faculty, resulting in an increase in the student/teacher ratio, and a possible decline in the quality of university education and research. High student/teacher ratios are particularly evident in professional disciplines. For

example, the ratio in business was 31.7 to one, 18.7 in engineering, 18.3 in law, compared with 14.2 for all disciplines.

Slower growth of full-time university teachers has meant a decrease in employment opportunities for recent Ph.D. graduates (especially in the arts and sciences) and a general aging of the faculty. The impact of this aging process on university teaching and research needs to be assessed. A further consequence of the decrease in hiring has been a substantial decline in mobility and fewer foreign faculty. It is anticipated that these trends will accelerate in the next few years.

This study also draws attention to the labour-intensive nature of university teaching and research and to the median salary of university professors, which has risen, on average, more rapidly than the Consumer Price Index (CPI). The salary structure reflects the rank distribution. It has been projected that in the next academic year, almost three-fourth of the full-time university teachers will be either full or associate professors. Within a few years, four out of five may be in this senior category.

This study has reviewed the growth pattern of full-time university teachers by province and university, shifts among disciplines and a variety of socio-economic characteristics such as sex, age, rank, previous employment, citizenship, and country of

first degree. These variables have been examined from an historical perspective. At the same time, the historical series are related to other factors such Ph.D. recipients in professional programs. The information is useful for policy decisions made by the university community and the government.

Appendix A

Student/Teacher Ratio

This Appendix gives an alternative student/teacher ratio for the seventies by selected teaching fields. The number of part-time teachers (including teaching assistants) at Canadian universities and how many courses they teach are not known. With the expansion of graduate education, graduate assistants and post-doctorals have been increasingly involved in teaching and research.

Moreover, the number of part-time faculty varies by university and by discipline. Consequently, the estimated national total might be misleading.

Therefore, full-time equivalent enrolment has been related only to full-time university teachers. Data for the seventies show the decline of this student/teacher ratio from 15.1 in 1970-71 to 13.7 in 1974-75 and an increase again to 14.2 in 1979-80 (Table A-1).

However, the ratio varied by discipline. For example, in 1979-80, from 31.7 in business to 18.2 in engineering, 17.3 in law, and 10.2 in fine and applied arts. In recent years, most professional fields of study have experienced an increase in the student/teacher ratio, whereas it declined or remained constant in many of the arts and science programs.

Table A-1

Student/Teacher Ratio in Selected Disciplines
1970-71 to 1979-80

Year	All Disciplines	Business	Law	Engineering & Applied Sciences	Fine and Applied Arts
1970-71	15.1	33.5	18.6	14.9	N/A
1971-72	14.0	29.9	19.2	15.4	9.1
1972-73	13.9	31.5	17.6	14.6	10.0
1973-74	13.7	31.2	18.3	14.4	10.7
1974-75	13.7	29.4	17.1	14.7	10.4
1975-76	14.4	31.5	17.6	16.1	10.8
1976-77	14.3	30.3	17.5	16.6	10.7
1977-78	14.4	29.7	17.2	17.2	10.5
1978-79	14.1	30.0	16.7	17.4	9.2
1979-80	14.2	31.7	18.3	18.7	10.2

Note: Part-time students are converted to full-time equivalent by a ratio of 3 to 1.

Appendix B

Full-time Faculty by University and by Teaching Discipline: A Twenty-five Year Review

Since 1956-57 Statistics Canada has gathered detailed information about the socio-economic characteristics of full-time university teachers, biennially at first, and annually after 1966-67.

This appendix focuses on the growth pattern of full-time faculty in 46 university for a 25-year period (1956-57 to 1980-81).

The second part shows the growth and distributional shifts from 50 disciplines.⁽¹⁰⁾

Table B-1 reveals the remarkable and unprecedented increase in the number of teachers from the sixties to the mid-seventies. For several years, their ranks swelled by more than 2,000 annually. The total in the 46 universities rose from 5,463 in 1959-60 to 30,437 in 1976-77, almost a sixfold increase. Since then, this growth has levelled off, but by 1980-81 full-time teachers numbered an estimated 33,071.

This rapid rise, is exemplified by Memorial where faculty increased from 63 in 1959-60 to 805 in 1977-78 and to 829 in 1980-81.

Teaching staff at many other institutions grew tenfold during

(10) The Canadian Statistical Review, Volume 53, Number 57, July 1978, had published an article by the author "Some Characteristics of Full-time University Teachers, 1956-57 to 1977-78".

Province and University	56/57	57/58	58/59	59/60	60/61	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81
Memorial	41	50	59	63	68	88	108	125	147	170	204	239	340	422	500	561	562	706	747	679	765	805	812	810	829
Prince Edward Island	10	12	14	17	20	21	23	24	28	33	65	98	119	120	123	125	129	122	117	121	114	118	120	120	123
Acadia	54	59	64	69	75	77	79	83	86	89	99	109	115	134	149	162	161	169	176	195	195	198	205	209	211
Dalhousie	89	97	105	104	129	154	154	179	202	226	278	330	422	492	492	572	622	625	699	753	779	790	771	794	813
Mount St. Vincent	18	20	22	23	25	25	25	26	28	31	40	50	55	56	52	62	69	75	80	82	95	99	109	103	106
N.S. Technological	25	26	27	28	30	31	32	39	44	49	52	55	63	68	70	69	64	67	65	66	66	68	67	68	68**
St. Francis Xavier	78	79	80	84	89	97	106	121	120	119	134	150	158	170	192	230	228	205	205	162	158	162	159	154	152
St. Mary's	25	27	29	33	37	42	47	49	53	57	69	82	106	140	146	161	165	173	177	168	177	178	181	188	188
Sub-total Nova Scotia	289	308	327	342	360	401	443	497	533	571	672	776	888	990	1,101	1,256	1,309	1,313	1,368	1,426	1,466	1,494	1,489	1,509	1,538
Mount Allison	60	61	63	65	67	73	79	84	90	97	99	102	109	104	109	112	117	120	120	122	129	137	130	135	137
New Brunswick	83	90	97	111	125	138	152	171	193	216	256	296	330	373	387	418	447	500	516	507	540	551	571	575	575
Moncton	155	173	193	214	235	255	275	301	342	385	437	490	563	624	656	725	772	870	901	969	1,043	999	1,009	1,037	1,036
Sub-total New Brunswick	17	19	21	24	27	29	31	37	44	52	59	67	73	79	81	90	70	73	75	67	65	70	78	77	77
Bishop's	493	460	468	472	497	556	615	668	731	795	878	962	1,091	1,168	1,178	1,188	1,155	1,260	1,254	1,306	1,281	1,256	1,222	1,222	1,222
McGill	23	25	27	35	44	52	61	174	225	277	343	411	500	558	588	565	600	624	637	642	681	668	667	685	685
Concordia	269	273	277	298	320	334	349	447	538	630	803	977	1,067	1,168	1,212	1,372	1,405	1,427	1,484	1,596	1,645	1,676	1,755	1,774	1,774
Montréal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	761	949	992	1,008	1,048	1,185	1,241	1,343	1,412	1,381	1,381
Québec	191	216	241	252	264	302	340	410	519	628	687	747	877	1,021	1,263	1,162	1,192	1,231	1,280	1,340	1,360	1,403	1,465	1,433	1,433
Laval	84	68	53	55	58	80	103	124	130	136	176	216	280	366	449	530	554	560	568	648	651	683	695	717	717
Sherbrooke	1,017	1,041	1,067	1,136	1,210	1,353	1,499	1,860	2,187	2,518	2,946	3,380	3,888	4,360	5,532	5,806	5,968	6,168	6,366	6,732	6,949	7,124	7,308	7,289	7,289
Sub-total Québec	0	0	0	0	0	0	0	0	0	25	51	77	92	123	152	186	198	203	219	219	219	220	216	220	215
Brock	45	64	83	98	113	112	112	167	178	190	256	322	368	420	480	578	583	589	604	607	633	632	628	625	624
Carleton	252	248	245	244	243	253	263	264	293	322	431	541	600	632	698	704	731	728	740	720	782	774	786	769	772
Guelph	0	0	0	0	0	0	15	21	33	46	80	115	133	176	209	240	233	235	232	246	240	242	252	250	244
Lakehead	0	0	0	12	25	29	33	36	48	61	84	108	126	159	192	218	233	241	263	324	323	334	348	338	323
Laurentian	103	102	102	114	126	148	171	195	244	293	329	365	389	436	477	675	711	767	771	806	831	877	903	912	904
McMaster	162	180	198	212	226	240	254	291	294	297	352	408	467	591	653	835	877	886	901	935	934	945	953	945	951
Ottawa	171	180	189	203	217	237	257	300	345	391	444	498	565	668	699	764	808	828	821	875	899	886	916	928	931
Queen's	998	888	778	860	942	1,008	1,071	1,125	1,251	1,376	1,616	1,856	2,054	2,165	2,360	2,799	2,423	2,560	2,626	2,460	2,460	2,560	2,693	2,686	2,686
Toronto	0	0	0	0	0	0	0	0	0	0	0	101	131	137	144	133	134	136	139	160	160	140	140	140	140
OISE	0	0	0	0	0	0	0	0	0	39	59	79	101	113	120	157	160	172	175	177	186	182	176	179	182
Trent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waterloo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wilfrid Laurier	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Western	193	190	187	207	227	257	287	336	421	506	583	661	665	753	867	1,085	1,183	1,207	1,269	1,353	1,368	1,422	1,420	1,392	1,414
Windsor	49	65	82	95	108	117	126	146	160	175	206	238	289	380	477	477	468	494	498	503	503	526	496	515	515
York	7	7	7	12	18	35	53	64	112	160	250	341	439	578	636	867	1,008	1,007	1,056	1,039	1,037	1,030	1,014	1,019	1,019
Sub-total Ontario	1,980	1,924	1,871	2,057	2,344	2,568	2,810	3,166	3,685	4,274	5,223	6,283	7,014	8,023	8,934	10,162	10,606	10,766	11,078	11,348	11,667	11,626	11,887	11,916	11,939
Brandon	0	0	20	22	24	29	34	40	47	55	64	74	80	89	95	128	109	116	108	131	134	136	142	126	128
Manitoba	270	271	272	301	309	353	377	403	447	492	585	679	804	896	1,034	1,126	1,133	1,173	1,210	1,236	1,249	1,312	1,301	1,314	1,314
Winnipeg	29	31	33	37	42	57	71	99	106	113	125	138	104	135	186	138	141	161	163	190	191	194	205	191	191
Sub-total Manitoba	299	302	325	360	375	439	482	542	600	660	774	891	988	1,120	1,315	1,438	1,413	1,450	1,501	1,557	1,574	1,641	1,618	1,633	1,633
Saskatchewan	260	259	258	284	310	334	358	395	498	602	707	813	946	1,011	1,156	1,240	1,248	1,280	1,344	1,353	1,402	1,458	1,444	1,444	1,444
Regina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total Saskatchewan	260	259	258	284	310	334	358	395	498	602	707	813	946	1,011	1,156	1,240	1,248	1,280	1,344	1,353	1,402	1,458	1,444	1,444	1,444
Alberta	267	301	336	396	456	535	614	742	724	724	947	1,151	1,357	1,559	1,912	2,073	2,352	2,341	2,447	2,550	2,635	2,776	2,809	2,796	2,856
Calgary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lethbridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total Alberta	267	301	336	396	456	535	614	742	724	724	947	1,151	1,357	1,559	1,912	2,073	2,352	2,341	2,447	2,550	2,635	2,776	2,809	2,796	2,856
British Columbia	419	471	523	594	665	725	785	859	950	1,044	1,129	1,218	1,292	1,450	1,530	1,642	1,665	1,653	1,789	1,875	1,862	1,971	1,988	2,034	2,086
Simon Fraser	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total British Columbia	419	471	523	594	665	725	785	859	950	1,044	1,129	1,218	1,292	1,450	1,530	1,642	1,665	1,653	1,789	1,875	1,862	1,971	1,988	2,034	2,086
Total	4,737	4,841	4,973	5,463	6,121	6,820	7,521	8,651	9,858	11,392	13,538	16,130	18,269	20,762	23,665	26,098	26,855	27,551	28,444	29,496	30,347	30,733	31,389	31,577	31,856
Other Institutions	261	302	344	463	394	430	465	474	590	696	656	573	595	1,077	939	815	920	859	1,498	1,288	1,326	1,434	1,256	1,226	1,215
Grand Total	4,998	5,158	5,317	5,926	6,515	7,260	7,986	9,125	10,605	12,088	14,394	16,703	18,864	21,											

years, and no university in Table B-1 failed to at least double its full-time faculty. Expansion at French-speaking universities was particularly marked. Most Ontario universities experienced six- to tenfold increases, and six of them had not even existed in 1959-60. The staff at one of the new institutions, York, grew from 12 to around 1,000. By 1974-75, Ontario universities alone had more than twice as many teachers (11,078) as there had been in all Canada 16 years before. Faculty growth in the Western Provinces proceeded at a similar rate over the 25 years. The increase at the University of Manitoba was from 301 to 1,314; at the two universities of Saskatchewan, from 284 to 1,444; at the University of Alberta, from 396 to 1,582, and at the University of British Columbia, from 594 to 2,086.

Growth rates in Nova Scotia and New Brunswick were slower. However, in these two provinces, the faculties at universities like Dalhousie, St. Mary's and Moncton increased as rapidly as the national trend.

Table B-2 shows the percentage distribution of university teachers among institutions and provinces between 1956-57 and 1980-81.

The concentration of faculty in Ontario, Quebec, Alberta, and Newfoundland (Memorial) increased, with a corresponding decline in the other provinces. Between 1959-60 and 1980-81 Ontario's share rose slightly (from 35% to 36%) while Quebec's went from 19%

University, 1956-57 to 1980-81

Province and University		56/57	57/58	58/59	59/60	60/61	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	
Memorial	Prince Edward Island	0.8	1.0	1.1	1.1	1.0	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.8	1.9	2.0	2.2	2.4	2.5	2.5	2.2	2.4	2.5	2.5	2.5	2.5	
	Acadia	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
	Dalhousie	1.1	1.1	1.2	1.2	1.1	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	Mount St. Vincent	1.8	1.9	2.0	1.8	0.6	1.8	1.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
	N.S. Technological	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
	St. Francis Xavier	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	St. Mary's	1.6	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.7	0.7	0.5	0.5	0.6	0.6	0.6	
	Sub-total Nova Scotia	5.8	6.0	6.1	5.8	5.5	5.5	5.5	5.4	5.0	4.7	4.7	4.6	4.7	4.5	4.5	4.7	4.7	4.7	4.6	4.6	4.6	4.6	4.6	4.6	4.7	
	Mount Allison	1.2	1.2	1.1	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
	New Brunswick	1.7	1.7	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.8	1.7	1.6	1.7	1.7	1.8	1.7	
Memorial	Moncton	3.1	3.4	3.6	3.6	3.6	3.5	3.4	3.3	3.2	3.2	3.0	2.9	3.0	2.9	2.7	2.7	2.7	2.8	3.1	3.0	3.1	3.1	3.1	3.2	3.1	
	Sub-total New Brunswick	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	
	Bishop's	8.7	8.5	8.4	8.0	7.6	7.7	7.7	7.3	6.9	6.6	6.1	5.8	5.8	5.3	4.8	4.2	4.2	4.2	4.2	4.1	4.1	4.0	3.9	3.7	3.7	
	McGill	0.5	0.5	0.5	0.6	0.7	0.7	0.8	1.9	2.1	2.3	2.4	2.4	2.6	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
	Concordia	5.4	5.3	5.2	5.0	4.9	4.6	4.4	4.9	5.1	5.2	5.6	5.8	5.7	5.3	4.9	5.1	5.1	5.0	5.0	5.2	5.2	5.2	5.4	5.4	5.4	
	Montreal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.5	3.6	3.5	3.5	3.8	3.9	4.2	4.3	4.2	
	Quebec	3.8	4.2	4.5	4.3	4.0	4.2	4.3	4.5	4.9	5.2	4.8	4.5	4.6	4.7	5.1	4.3	4.3	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.3	
	Laval	1.7	1.3	1.0	0.9	0.9	1.1	1.3	1.4	1.2	1.1	1.2	1.3	1.5	1.7	1.8	2.0	2.0	2.0	1.9	2.1	2.1	2.1	2.1	2.2	2.2	
	Sherbrooke	20.3	20.2	19.2	18.5	18.6	18.8	20.4	20.6	20.8	20.5	20.2	20.6	20.0	20.0	22.5	21.6	21.5	21.5	21.3	21.9	21.9	22.2	22.4	22.2	22.2	22.1
	Memorial	Sub-total Quebec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Brook		0.9	1.2	1.6	1.7	1.7	1.5	1.4	1.8	1.7	1.6	1.8	1.9	2.0	1.9	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	
Carleton		5.0	4.8	4.6	4.1	3.7	3.5	3.3	2.9	2.8	2.7	3.0	3.2	3.2	3.2	2.9	2.8	2.6	2.5	2.5	2.3	2.5	2.4	2.4	2.3	2.3	
Guelph		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.7	
Lakehead		0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.0	1.0	1.0	
Laurentian		2.1	2.0	1.9	1.9	1.9	2.0	2.1	2.1	2.3	2.4	2.3	2.2	2.2	2.0	2.0	1.9	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.7	
McMaster		3.2	3.5	3.7	3.6	3.5	3.3	3.2	3.2	2.8	2.5	2.4	2.4	2.5	2.7	2.7	3.1	3.2	3.1	3.0	3.0	3.0	2.9	2.9	2.9	2.9	
Ottawa		3.4	3.5	3.6	3.4	3.3	3.3	3.2	3.3	3.2	3.3	3.2	3.1	3.0	3.0	3.1	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	
Queens		20.0	17.2	14.6	14.5	14.4	13.9	13.4	12.3	11.8	11.4	11.2	11.1	10.9	9.9	9.5	8.8	8.7	8.5	8.3	7.9	8.1	7.7	7.8	8.2	8.1	
Toronto		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	
Memorial	OISE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	Trent	0.0	0.0	0.0	0.0	0.0	1.3	1.5	1.8	2.0	2.5	2.6	2.7	2.5	2.6	2.6	2.7	2.6	2.5	2.5	2.6	2.5	2.5	2.5	2.4	2.4	
	Waterloo	0.0	0.0	0.0	0.0	0.5	0.6	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	
	Wilfrid Laurier	3.9	3.7	3.5	3.5	3.4	3.5	3.6	3.7	4.0	4.2	4.0	4.0	3.5	3.4	3.5	3.4	3.5	4.0	4.3	4.2	4.4	4.4	4.3	4.3	4.3	
	Western	1.0	1.3	1.5	1.6	1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.4	1.5	1.7	1.9	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	
	Windsor	0.1	0.1	0.1	0.2	0.3	0.5	0.7	0.7	1.1	1.3	1.7	2.0	2.3	2.6	2.6	3.2	3.6	3.5	3.5	3.4	3.3	3.0	3.0	3.1	3.1	
	York	39.6	37.3	35.2	34.7	35.9	35.4	35.2	34.7	34.7	35.4	36.3	37.6	37.2	36.7	36.3	37.8	38.2	37.9	37.0	36.9	36.8	36.1	36.4	36.3	36.1	
	Sub-total Ontario	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
	Brandon	5.4	5.3	5.1	5.1	4.7	4.9	4.7	4.4	4.2	4.1	4.1	4.1	4.3	4.1	4.2	4.2	4.1	4.1	4.0	4.0	3.9	4.0	3.9	4.0	3.9	
	Memorial	Manitoba	0.6	0.6	0.6	0.6	0.6	0.8	0.9	1.1	1.0	0.9	0.9	0.8	0.6	0.6	0.6	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Winnipeg		6.0	5.9	6.1	6.1	5.7	6.1	6.0	5.9	5.6	5.5	5.4	5.3	5.2	5.1	5.3	5.3	5.1	5.0	5.0	5.0	4.9	4.9	5.0	4.9	5.0	
Sub-total Manitoba		5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.3	4.7	5.0	4.9	5.0	4.9	5.0	4.6	4.7	4.6	3.2	3.1	3.0	3.2	3.1	3.1	3.3	3.3	
Saskatchewan		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.4	1.3	1.2	1.2	1.2	1.1	1.1	
Regina		5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.3	4.7	5.0	4.9	4.9	5.0	4.6	4.6	4.7	4.6	4.5	4.5	4.5	4.4	4.3	4.2	4.7	4.5	
Sub-total Saskatchewan		5.3	5.8	6.3	6.7	7.0	7.4	7.7	8.1	6.8	5.8	5.6	5.5	5.4	5.4	5.1	5.3	5.2	5.3	5.0	4.9	4.9	5.0	4.8	4.7	4.8	4.7
Alberta		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.8	2.9	2.9	3.1	3.3	3.3	3.3	
Calgary		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lethbridge		5.3	5.8	6.3	6.7	7.0	7.4	7.7	8.1	6.8	7.8	8.0	8.1	8.3	8.7	8.4	8.7	8.4	8.7	8.6	8.3	8.3	8.3	8.6	8.6	8.5	
Sub-total Alberta		8.4	9.1	9.8	10.0	10.2	10.0	9.8	9.4	9.0	8.6	7.8	7.3	6.8	6.6	6.2	6.1	6.0	5.8	6.0	6.1	5.9	6.1	6.1	6.1	6.2	6.3
Memorial	British Columbia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.3	1.2	1.4	1.4	1.4	1.4	1.5	
	Simon Fraser	0.0	0.0	0.0	0.0	0.0	1.2	1.4	1.6	1.5	1.6	1.6	1.6	1.6	1.8	1.8	1.7	1.5	1.5	1.4	1.5	1.6	1.5	1.4	1.4	1.5	
	Victoria	8.4	9.1	9.8	10.0	11.4	11.4	11.4	10.9	10.5	10.2	9.4	10.8	10.4	10.0	9.2	8.9	8.7	8.5	8.7	8.7	9.0	8.8	8.9	9.2	9.2	
	Sub-total British Columbia	94.8	93.9	93.5	92.2	94.0	94.0	94.2	94.8	94.4	94.2	95.4	96.6	96.8	95.1	96.2	97.0	96.7	97.0	95.0	95.8	95.8	95.5	96.7	96.3	96.3	
	Total	5.2	6.1	6.5	7.8	6.0	6.1	5.8	5.2	5.6	5.8	4.6	3.4	3.2	4.9	3.8	3.0	3.3	3.0	5.0	4.2	4.7	4.5	3.8	3.7	3.7	
	Other Institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

to 22%. Together McGill and the University of Toronto represented 22.5% of all university teachers in 1959-60; by 1980-81 this had fallen to 12%, as other universities had grown more quickly. Memorial's share, which had been 1.1%, increased to 2.5%. The universities in Nova Scotia experienced a gradual drop: from 5.8% to 4.7%; a smaller decrease occurred in New Brunswick: 3.6% to 3.1%. Manitoba, Saskatchewan and British Columbia underwent declines in contrast to Alberta, where the percentage of teachers rose from 6.7% to 8.6% of Canada's total. On average, the "other institutions" accounted for 3-4%, a proportion that has remained stable in recent years.

Table B-3 shows growth of the number of teachers as an index, using 1967-68 as a base of 100. The index was 190 by 1976-77 and continued to increase to 198 in 1980-81, but with considerable provincial and institutional variation.

Gains were greatest during the late sixties, and since 1972-73 have levelled off. Although the faculty of some Ontario universities has doubled or tripled since 1967-68, the province's index stood at 190 in 1980-81, slightly below the national average. The index for Quebec's French-speaking universities increased more rapidly than that for the English-speaking institutions. Except for Alberta, the Western provinces experienced slower than average growth.

Table B-3
Index (1967-68 = 100) of Full-time University Teachers, by Province and University, 1967-68 to 1980-81

Province and University	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81
Memorial	100	142	177	209	251	260	295	313	284	320	337	340	339	347
Prince Edward Island	100	121	122	125	125	132	124	119	123	116	120	122	122	126
Acadia	100	106	123	137	149	148	155	161	179	179	182	188	192	194
Dalhousie	100	118	128	149	173	188	189	212	228	236	240	234	241	246
Mount St. Vincent	100	110	112	104	124	138	150	160	164	190	198	218	206	212
N.S. Technical College	100	114	124	127	125	116	122	118	120	120	124	122	124	124
St. Francis Xavier	100	105	113	128	153	152	137	137	108	105	108	106	103	101
St. Mary's	100	129	171	178	196	201	210	199	205	211	216	221	221	229
Sub-total Nova Scotia	100	114	128	142	162	169	169	179	184	189	193	192	194	198
Mount Allison	100	107	102	107	110	115	118	118	120	126	134	127	132	134
New Brunswick	100	111	126	131	141	151	169	174	171	194	184	186	193	194
Moncton	100	135	167	174	212	226	272	288	370	371	346	357	360	352
Sub-total New Brunswick	100	115	127	134	148	158	178	184	198	213	204	206	212	211
Bishop's	100	109	118	121	134	104	109	112	100	97	104	116	115	115
McGill	100	113	121	122	118	120	129	131	130	136	133	131	127	127
Concordia	100	122	136	143	137	146	152	155	156	166	163	162	167	167
Montréal	100	109	120	124	140	144	146	152	163	168	172	180	182	182
Québec	100	—	—	100	125	130	132	138	156	163	176	186	181	181
Laval	100	117	137	169	156	160	165	171	179	182	188	193	192	192
Sherbrooke	100	130	169	208	245	256	259	267	300	301	316	322	332	332
Sub-total Quebec	100	115	129	164	172	177	182	188	199	206	211	216	216	216
Brock	100	119	160	197	242	257	264	284	284	284	286	281	286	279
Carleton	100	114	130	149	179	181	183	188	188	197	196	195	194	194
Guelph	100	111	117	129	130	135	136	137	133	145	143	145	142	143
Lakehead	100	116	153	182	209	213	196	203	214	209	210	219	217	212
Laurentian	100	117	147	178	202	216	223	244	300	299	309	322	313	299
McMaster	100	107	119	131	185	195	205	211	221	228	240	247	250	248
Ottawa	100	114	145	160	205	215	217	221	229	229	232	236	232	233
Queen's	100	113	134	140	153	162	147	165	176	181	178	184	186	187
Toronto	100	111	117	126	128	131	130	133	130	138	133	138	145	145
OISE	100	130	136	143	132	133	135	158	139	139	139	139	139	139
Trent	100	128	143	152	199	203	218	222	224	235	230	223	227	230
Waterloo	100	104	124	143	160	157	161	163	177	176	177	180	176	176
Wilfrid Laurier	100	104	108	118	114	119	121	150	163	173	184	182	179	187
Western	100	101	114	131	166	179	183	192	205	207	215	215	211	214
Windsor	100	121	160	200	200	197	208	209	206	211	211	221	208	216
York	100	129	170	187	254	296	295	310	305	304	286	302	297	299
Sub-total Ontario	100	112	128	142	162	169	171	176	181	186	185	189	190	190
Brandon	100	108	120	128	173	147	157	146	177	181	184	168	170	173
Manitoba	100	118	132	152	166	167	173	178	182	184	184	193	192	194
Winnipeg	100	75	98	135	133	124	117	133	138	138	141	149	138	138
Sub-total Manitoba	100	111	126	148	161	159	163	168	175	177	177	184	182	183
Saskatchewan (Saskatoon and Regina)	100	116	124	142	152	154	157	157	165	166	166	172	179	178
Alberta	100	110	129	138	154	154	164	162	164	168	176	193	190	193
Calgary	100	126	165	153	181	175	183	195	203	214	228	243	247	253
Lethbridge	100	—	—	100	101	98	97	97	109	111	114	119	117	120
Sub-total Alberta	100	115	141	153	173	172	180	182	188	194	205	207	206	210
British Columbia	100	106	119	126	135	137	136	147	154	153	162	163	167	171
Simon Fraser	100	109	111	105	108	104	122	120	134	139	146	149	152	156
Victoria	100	122	141	152	152	153	145	160	175	177	158	168	189	193
Sub-total British Columbia	100	109	121	126	133	133	135	144	154	154	159	162	168	172
Total Universities	100	113	129	147	162	166	171	176	184	190	193	195	196	198

Table B-4 indicates growth in the number of full-time teachers in every field and discipline, but more in some than in others. Classics teachers (latin, greek, hebrew, and classical studies) increased from 119 in 1956-57 to only 241 in 1979-80. In contrast, the number of history teachers burgeoned from 125 to 1,060. Most other humanities disciplines experienced a similar rise. For example, teachers of spanish increased from 9 to 149, and of English from 253 to 1,372. Numbers in the humanities have levelled off or even declined slightly in recent years owing to enrolment shifts. Gains in the social sciences were even greater as universities tried to keep up with soaring enrolment. Anthropology teachers increased from 9 in 1956-57 to 403 in 1979-80, sociology teachers from 32 to 962, and psychology teachers from 88 to 1,432. While the rate of increase has slowed down in these disciplines, an outstanding feature of the seventies has been continued growth in applied social sciences such as business where the faculty rose from 923 in 1971-72 to 1,715 in 1979-80; law, from 428 to 676, and social work, from 274 to 371.

The pattern in the sciences was mixed. The number of teachers in agriculture rose relatively slowly from 243 in 1956-57 to 455 in 1979-80. The chemical and electrical engineering faculty increased sixfold from 38 to 228, and from 74 to 468, respectively, but in civil engineering numbers went from 152 to only 392. The increase in chemistry was from 334 in 1956-57 to 1,016 in 1969-70, but their numbers have since dropped to 955 in 1979-80.

Teaching Field and Discipline	56/57	57/58*	58/59	59/60*	60/61	61/62*	62/63	63/64	64/65*	65/66	66/67*	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80
Physical Education	97	99	101	111	121	135	149	183	210	238	286	334	385	440	475	579	670	632	659	712	717	756	755	733
Education	185	209	234	299	364	417	471	527	599	670	813	956	1,075	1,210	1,377	1,591	1,918	2,050	2,247	2,586	2,509	2,530	2,517	2,478
Sub-total Education	282	308	335	410	485	552	620	710	809	908	1,099	1,290	1,460	1,650	2,302	2,470	2,538	2,682	2,906	3,298	3,226	3,286	3,272	3,211
Music	52	49	47	52	57	62	67	79	105	131	170	209	237	296	358	396	423	475	435	465	489	547	550	548
Fine and Applied Arts	65	59	53	53	54	67	80	91	120	150	211	272	312	423	544	533	608	623	726	753	768	783	1,018	1,014
Sub-total Fine Arts	117	108	100	105	111	129	147	170	225	281	381	481	569	719	912	929	1,031	1,048	1,161	1,218	1,257	1,330	1,568	1,562
Classics	119	127	135	149	163	170	177	196	209	222	242	261	284	339	299	277	275	269	264	256	260	256	256	241
History	125	135	146	167	187	219	250	305	374	443	534	626	714	856	935	1,008	1,077	1,037	1,042	1,026	1,063	1,071	1,062	1,060
Library and Records Science	18	14	10	12	13	18	23	26	31	36	44	53	63	80	88	94	92	83	95	98	99	97	100	100
Mass Media Studies	7	6	5	4	4	4	4	4	5	6	7	8	10	13	13	12	12	13	101	125	140	143	158	166
English	253	289	324	361	398	452	506	602	722	842	986	1,130	1,217	1,372	1,469	1,500	1,479	1,465	1,401	1,350	1,374	1,462	1,386	1,372
French	113	147	181	207	233	247	261	348	422	496	567	647	734	805	877	866	776	787	757	768	779	774	753	753
German	42	45	47	54	61	66	72	91	110	123	137	148	166	195	210	222	224	215	207	189	190	185	173	173
Spanish	9	12	16	17	18	21	24	29	44	58	68	86	94	127	151	154	156	156	154	150	151	147	149	149
Other Modern Languages	113	99	85	95	106	140	173	226	264	301	385	469	511	581	530	634	675	667	658	672	690	470	475	478
Philosophy	148	168	187	202	217	251	285	326	365	405	455	505	534	618	635	697	701	693	709	666	661	673	661	650
Religious Studies	117	130	144	151	158	161	165	180	193	206	227	248	268	288	310	303	504	537	579	578	570	576	595	577
Sub-total Humanities	1,064	1,172	1,280	1,419	1,558	1,749	1,940	2,314	2,720	3,125	3,613	4,102	4,524	5,131	5,714	6,043	6,107	6,000	6,007	5,883	5,964	5,868	5,799	5,719
Anthropology	9	10	12	15	19	20	21	32	41	51	77	103	117	141	195	269	334	311	346	370	388	414	403	403
Area Studies	62	59	56	53	51	59	67	69	89	110	131	153	173	174	140	105	95	119	122	87	92	87	82	83
Commerce, Business Administration	107	126	146	154	161	177	192	236	283	331	417	502	607	685	712	923	952	1,051	1,227	1,348	1,490	1,557	1,649	1,715
Economics	173	179	186	201	216	244	272	312	367	423	508	594	679	762	766	860	891	906	952	960	960	1,030	1,056	1,078
Geography	38	47	56	68	79	94	109	142	179	215	270	325	368	453	505	589	618	609	615	636	664	691	712	702
Law	62	72	82	94	105	120	134	141	164	187	232	278	308	359	398	478	417	504	526	549	582	624	660	676
Political Science	81	21	29	36	45	54	73	93	123	162	200	264	328	385	450	561	684	726	691	682	712	729	776	778
Psychology	28	102	115	122	130	150	170	228	314	400	536	672	756	1,010	1,163	1,196	1,229	1,268	1,322	1,376	1,478	1,489	1,482	1,482
Social Work	57	58	59	62	66	69	72	102	108	113	122	131	161	198	234	274	271	289	333	352	376	366	371	371
Sociology	32	38	43	52	61	72	84	115	155	195	248	300	410	540	702	829	806	848	886	903	917	975	962	962
Sub-total Social Sciences	649	720	791	866	942	1,078	1,214	1,500	1,862	2,225	2,805	3,386	3,964	4,780	5,726	6,124	6,308	6,575	6,957	7,239	7,550	8,008	8,168	8,245
Agriculture	243	230	217	208	199	215	232	239	252	267	286	307	377	336	381	366	385	412	366	429	457	458	455	455
Biology	118	112	105	113	120	141	161	161	223	251	278	365	452	523	691	609	634	658	697	711	835	872	847	831
Botany	68	66	65	67	70	75	79	88	108	127	130	133	137	145	187	159	188	191	175	212	200	199	216	211
Household Science and Related	57	71	86	91	92	98	101	107	113	118	126	134	146	170	160	208	221	238	224	276	290	286	287	274
Veterinary Medicine and Sciences	58	55	51	52	54	55	56	52	58	65	75	85	96	125	128	106	157	135	170	194	231	249	226	241
Zoology	246	232	218	229	240	255	271	310	351	393	418	462	530	552	246	292	319	315	436	336	342	346	355	335
Sub-total Biological Sciences	780	766	742	761	781	840	900	1,019	1,133	1,248	1,400	1,553	1,759	2,046	1,711	1,765	1,928	1,988	2,082	2,281	2,392	2,385	2,354	2,347
Architecture	42	46	50	53	56	58	60	69	76	83	102	120	138	211	135	175	182	188	214	194	199	207	203	210
Chemical Engineering	38	44	49	56	64	68	73	80	92	105	129	153	170	183	213	246	242	242	242	219	228	224	228	228
Civil Engineering	152	146	140	167	194	209	224	232	250	268	310	353	370	408	415	440	428	444	427	349	384	383	385	397
Electrical Engineering	74	86	99	118	138	154	171	186	205	225	254	282	318	335	393	387	289	286	394	419	476	465	458	468
Mechanical Engineering	79	98	117	138	160	167	173	182	195	208	226	244	285	308	347	337	346	331	336	345	379	381	384	389
Mining Engineering	100	78	56	58	65	66	67	77	83	88	102	116	117	135	166	111	121	109	112	90	50	53	50	50
Forestry	20	24	29	33	36	38	39	41	45	49	54	60	69	91	95	90	78	81	153	90	85	88	99	94
Other Applied Sciences	74	84	93	93	92	109	126	144	148	152	199	246	281	404	291	295	468	502	417	618	558	606	637	665
Sub-total Applied Sciences	579	606	633	716	805	869	933	1,011	1,094	1,178	1,376	1,574	1,698	2,075	2,085	2,081	2,152	2,182	2,295	2,283	2,359	2,408	2,443	2,496
Dentistry	55	47	47	58	64	69	69	81	90	99	120	141	170	191	233	236	188	260	273	295	310	313	310	316
Medicine and Related	443	373	304	325	369	402	434	477	551	626	867	1,109	1,276	1,369	2,394	2,747	2,880	3,032	3,010	3,175	3,311	3,490	3,642	3,782
Nursing	57	60	64	66	73	82	91	102	124	146	189	233	287	300	349	313	412	431	540	554	590	611	594	606
Pharmacy	25	29	32	33	36	44	52	61	62	64	75	85	106	181	102	113	118	143	137	149	153	153	153	153
Sub-total Health Sciences	580	509	439	471	536	592	646	721	827	935	1,251	1,568	1,839	2,061	3,078	3,419	3,598	3,960	4,173	4,364	4,567	4,699	4,857	4,857
Mathematics	245	283	322	362	402	436	471	560	656	753	868	983	1,062	1,273	1,481	1,481	1,394	1,315	1,251	1,887	1,888	1,927	1,962	1,972
Chemistry	134	377	320	361	402	445	487	539	616	692	765	838	939	1,016	927	1,051	1,183	1,162	1,122	896	911	951	951	955
Geology	83	94	113	106	110	123	136	130	156	181	200	220	253	292	330	457	506	516	507	457	478	437	438	446
Physics	250	256	260	291	322	359	396	450	505	558	634	708	769	867	946	1,079	1,158	1,124	1,462	989	983	1,000	983	993
Sub-total Physical Sciences	912	960	1,015	1,120	1,236	1,363	1,490	1,679	1,933	2,184	2,467	2,749	3,023	3,398	3,575	4,068	4,241	4,117	4,342	4,209	4,240	4,315	4,342	4,366
Grand Total	4,973	5,149	5,335	5,868	6,454	7,177	7,890	9,124	10,603	12,084	14,392	16,703	18,816	21,840	24,603	26,959	27,903	28,458	29,710	30,784	31,673	32,645	33,803	33,803

*Interpolated

**Includes applied mathematics and computer science

***Includes, for 1975-76, 200 unclassified university teachers and 324 for 1976-77.

Although all faculties expanded during the 24 years, shifts among individual disciplines have been marked (Table B-5)*. A discernable trend reflects the more rapid growth of the social science faculties in relation to some other disciplines. The proportion of classics teachers declined from 2.4% of the total in 1956-57 to 0.7% in 1979-80, agriculture, from 4.9% to 1.4%, and chemistry, from 6.5% to 2.9%. The percentage of teachers in all engineering disciplines has declined from 11.6% to 7.6%. In contrast, some social science disciplines doubled, tripled and even quadrupled their representation e.g., commerce and business administration (2.2% to 5.2%) geography (0.8% to 2.1%), psychology (1.8% to 4.5%), and anthropology and sociology (0.9% to 4.1%).

An index using 1967-68 as a base of 100 illustrates the growth pattern in each discipline more clearly (Table B-6). Between 1967-68 and 1979-80 the index rose from 100.0 to 196.4 with considerable variation among disciplines. For example, by 1979-80 several had topped 200: education (259.2), music (262.2), social work (283.2), and geology (202.7). In contrast, classics declined (82.3%), and English and chemistry reached only 121.4 and 114.0. Overall, the social sciences advanced to 243.5 compared with 139.4 for the humanities and 158.8 for the physical sciences.

* The number of full-time university faculty by teaching disciplines must be regarded as approximations because a faculty member could teach in one or more disciplines. Secondly, in a number of instances, the specific teaching discipline was not provided; therefore these faculty members were allocated to identifiable disciplines. In other instances, a newer discipline, such as linguistics and environmental studies, were also allocated to more traditional teaching specialization. Consequently, these figures need to be used cautiously.

Table B-5

Percentage Distribution of Full-time University Teachers, by Teaching Field and Selected Disciplines, 1956-57 to 1979-80

Teaching Field and Discipline	56/57	57/58*	58/59	59/60*	60/61	61/62*	62/63	63/64	64/65*	65/66	66/67*	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80
Physical Education	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.7	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2
Education	3.7	4.1	4.4	5.1	5.6	5.8	6.0	5.8	5.6	5.5	5.6	5.7	5.7	5.5	7.6	7.0	6.9	7.2	7.6	8.4	7.9	7.9	7.7	7.6
Sub-total Education	5.7	6.0	6.3	7.0	7.5	7.7	7.9	7.8	7.6	7.5	7.6	7.7	7.7	7.5	9.3	9.2	9.1	9.4	9.8	10.7	10.2	10.0	9.8	9.8
Music	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.7	1.7
Fine and Applied Arts	1.3	1.1	1.0	0.9	0.8	0.9	1.0	1.0	1.1	1.2	1.4	1.6	1.6	1.9	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.4	3.1	3.1
Sub-total Fine Arts	2.3	2.1	1.9	1.8	1.7	1.8	1.8	1.9	2.1	2.3	2.6	2.9	2.9	3.3	3.7	3.4	3.7	3.7	3.9	4.0	4.0	4.1	4.8	4.8
Classics	2.4	2.5	2.5	2.5	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.5	1.1	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.7
History	2.5	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.5	3.7	3.7	3.7	3.8	3.9	3.8	3.7	3.9	3.6	3.5	3.3	3.4	3.3	3.3	3.2
Library and Records Science	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mass Media Studies	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
English	5.1	5.6	6.1	6.2	6.2	6.2	6.3	6.4	6.6	6.8	7.0	6.9	6.8	6.5	6.3	6.0	5.5	5.3	5.1	4.7	4.4	4.3	4.6	4.2
French	2.2	2.9	3.4	3.5	3.6	3.6	3.4	3.3	3.8	4.0	4.1	3.8	3.6	3.3	3.3	3.3	3.1	2.7	2.6	2.4	2.4	2.4	2.4	2.3
German	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5
Spanish	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4
Other Modern Languages	2.3	1.9	1.5	1.6	1.6	2.0	2.2	2.5	2.5	2.5	2.7	2.8	2.7	2.7	2.5	2.4	2.4	2.3	2.2	2.2	2.1	1.5	1.5	1.5
Philosophy	3.0	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.4	3.4	3.2	3.0	3.0	3.0	2.8	2.6	2.5	2.5	2.4	2.2	2.1	1.5	1.5	1.5
Religious Studies	2.4	2.5	2.7	2.6	2.5	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.3	1.3	2.2	1.9	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8
Sub-total Humanities	21.4	22.8	24.0	24.1	24.1	24.4	24.5	25.3	25.6	25.9	25.2	24.5	24.0	23.5	23.3	22.4	21.9	21.0	20.2	19.1	18.8	18.3	17.8	17.4
Anthropology	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.6	0.8	1.0	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.2
Area Studies	1.2	1.1	1.1	0.9	0.8	0.8	0.8	0.7	0.8	0.9	0.9	0.9	0.9	0.8	0.6	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Commerce, Business Administration	2.2	2.5	2.7	2.6	2.5	2.4	2.4	2.6	2.7	2.7	2.9	3.0	3.2	3.1	2.9	3.4	3.4	3.7	4.1	4.4	4.7	4.8	5.0	5.2
Economics	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.4	3.5	3.5	3.5	3.6	3.6	3.5	3.1	3.2	3.2	3.1	3.2	3.1	3.0	3.2	3.2	3.3
Geography	0.8	0.9	1.1	1.2	1.3	1.3	1.4	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.0	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1
Law	1.2	1.4	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.8	1.8	1.8	1.8	1.9	2.0	2.1
Political Science	0.4	0.6	0.7	0.7	0.9	1.0	1.2	1.3	1.5	1.7	1.8	2.0	2.0	2.1	2.3	2.5	2.6	2.4	2.3	2.3	2.3	2.4	2.4	2.4
Psychology	1.8	2.0	2.2	2.1	2.0	2.1	2.2	2.5	3.0	3.3	3.7	4.0	4.0	4.6	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.6	4.6	4.5
Social Work	1.1	1.1	1.0	1.0	1.0	1.0	0.9	1.1	1.0	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Sociology	0.7	0.7	0.8	0.9	1.0	1.0	1.1	1.3	1.5	1.6	1.8	1.8	2.2	2.5	2.8	3.1	2.9	3.0	3.0	2.9	2.9	3.0	2.9	2.9
Sub-total Social Sciences	13.1	14.0	14.9	14.7	14.6	15.0	15.5	16.4	17.6	18.4	19.5	20.3	21.0	21.9	21.2	22.7	22.6	23.0	23.4	23.5	23.7	24.9	25.0	25.1
Agriculture	4.9	4.5	4.0	3.5	3.1	3.0	3.0	2.6	2.4	2.2	2.0	1.8	1.7	1.5	1.5	1.4	1.4	1.5	1.2	1.4	1.4	1.4	1.4	1.4
Biology	2.4	2.2	2.0	1.9	1.9	2.0	2.0	2.4	2.3	2.5	2.7	2.8	3.2	3.2	2.5	2.3	2.4	2.4	2.4	2.7	2.8	2.6	2.5	2.5
Botany	1.4	1.3	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.1	0.9	0.8	0.7	0.7	0.8	0.6	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.7
Household Science and Related	1.1	1.4	1.6	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
Veterinary Medicine and Science	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6	0.5	0.6	0.6	0.7	0.8	0.7	0.7
Zoology	4.9	4.5	4.1	3.9	3.7	3.5	3.4	3.4	3.3	3.2	2.9	2.7	2.8	2.5	1.0	1.1	1.1	1.1	1.5	1.1	1.1	1.1	1.1	1.0
Sub-total Biological Sciences	15.9	14.8	13.9	12.9	12.1	11.7	11.4	11.2	10.7	10.3	9.7	9.3	9.4	9.4	7.0	6.6	6.9	7.0	7.0	7.4	7.6	7.4	7.2	7.2
Architecture	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	1.0	0.5	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
Chemical Engineering	0.8	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Civil Engineering	3.0	2.8	2.6	2.8	3.0	2.9	2.8	2.5	2.4	2.2	2.1	2.0	1.9	1.7	1.6	1.5	1.6	1.6	1.4	1.1	1.2	1.2	1.2	1.2
Electrical Engineering	1.5	1.7	1.9	2.0	2.2	2.1	2.2	2.0	1.9	1.9	1.7	1.7	1.7	1.5	1.6	1.5	1.0	1.0	1.3	1.4	1.5	1.4	1.4	1.4
Mechanical Engineering	1.6	1.9	2.2	2.3	2.5	2.3	2.2	2.0	1.8	1.7	1.6	1.5	1.5	1.5	1.4	1.4	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Mining Engineering	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Forestry	0.4	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.7	0.7	0.6	0.6	0.8	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2
Other Applied Sciences	0.4	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.7	0.7	0.6	0.6	0.8	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Sub-total Applied Sciences	11.6	11.8	11.9	12.2	12.5	12.1	11.8	11.1	10.3	9.7	9.6	9.4	9.3	9.5	8.5	7.7	7.7	7.6	7.7	7.4	7.5	7.5	7.5	7.6
Dentistry	1.1	0.9	0.7	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.6	0.9	0.9	1.0	1.0	1.0	0.9	1.0
Medicine and Related	8.9	7.2	5.7	5.5	5.7	5.6	5.5	5.2	5.2	5.2	6.1	6.6	6.8	6.2	9.7	10.2	10.3	10.6	10.1	10.3	10.4	10.8	11.2	11.5
Nursing	1.2	1.2	1.2	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.3	1.4	1.5	1.4	1.4	1.4	1.5	1.5	1.8	1.8	1.9	1.9	1.8	1.8
Pharmacy	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.8	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub-total Health Sciences	11.7	9.9	8.2	8.3	8.3	8.3	8.2	7.9	7.8	7.7	8.7	9.4	9.7	9.3	12.5	12.9	12.8	13.5	13.3	13.6	13.8	14.2	14.4	14.8
Mathematics	4.8	5.4	6.0	6.1	6.1	6.0	5.8	6.0	6.1	5.9	5.8	5.6	5.5	5.5	5.3	5.0	4.2	3.9	4.2	6.1	5.9	6.0	6.0	6.0
Chemistry	6.5	6.2	5.9	6.0	6.1	6.1	6.1	5.8	5.7	5.7	5.2	4.9	4.6	4.6	3.6	3.5	3.6	3.5	3.8	2.9	2.9	3.0	2.9	2.9
Geology	1.6	1.8	1.9	1.8	1.7	1.7	1.7	1.4	1.5	1.5	1.4	1.3	1.3	1.3	1.5	1.6	1.6	1.5	1.7	1.5	1.5	1.3	1.4	1.4
Physics	5.0	4.9	4.9	4.9	5.0	5.0	5.0	4.9	4.8	4.6	4.4	4.2	4.1	4.0	3.8	4.0	4.2	3.9	4.9	3.2	3.1	3.1	3.0	3.0
Sub-total Physical Sciences	18.3	18.6	18.9	19.0	19.2	19.0	18.9	18.4	18.2	18.1	17.1	16.5	16.0	15.6	14.5	15.1	15.2	14.8	14.6	13.7	13.4	13.4	13.3	13.3
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Interpolated

Table B-6

Index (1967-1968 = 100) of Full-time University Teachers, by Teaching Field and Selected Disciplines,
1967-68 to 1979-80

Teaching Field and Discipline	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80
Physical Education	100.0	115.3	131.8	127.3	173.4	185.6	189.2	197.3	213.2	214.7	226.3	226.0	219.5
Education	100.0	112.5	126.6	196.3	197.8	200.6	214.4	235.0	270.5	262.4	264.6	263.3	259.2
Sub-total Education	100.0	113.2	127.9	178.5	191.5	196.7	207.9	225.3	255.6	250.1	254.7	253.6	248.9
Music	100.0	113.4	141.6	176.1	189.5	202.4	203.4	208.1	222.5	234.0	261.7	263.2	262.2
Fine and Applied Arts	100.0	114.8	155.5	200.0	196.0	223.5	229.0	266.9	276.8	282.4	287.9	374.3	372.8
Sub-total Fine Arts	100.0	114.1	149.5	189.6	193.1	214.4	217.9	241.4	253.2	261.3	276.5	326.0	324.7
Classics	100.0	108.8	126.1	103.1	106.1	105.4	103.1	101.1	98.1	97.7	98.1	98.1	92.3
History	100.0	114.1	136.7	149.4	161.0	170.8	165.7	166.5	163.9	169.8	171.1	169.6	169.3
Library and Records Sciences	100.0	118.9	150.9	166.0	177.4	173.6	175.5	179.2	184.9	186.8	183.0	188.7	188.7
Mass Media Studies	100.0	125.0	162.5	387.5	900.0	900.0	1037.5	1262.5	1562.5	1750.0	1787.5	1975.0	2075.0
English	100.0	107.7	121.4	130.0	132.7	130.9	129.7	124.0	119.5	121.6	129.4	122.7	121.4
French	100.0	115.1	122.9	134.8	146.9	144.7	130.0	131.8	126.8	128.6	130.5	129.6	126.1
German	100.0	108.0	121.2	142.3	153.3	162.0	163.5	156.9	146.7	138.0	138.7	135.0	126.3
Spanish	100.0	126.5	138.2	186.8	222.1	226.5	229.4	229.4	226.5	220.6	222.1	216.2	219.1
Other Modern Languages	100.0	109.4	123.9	134.3	139.5	143.9	142.2	140.3	143.3	147.1	100.2	101.3	101.9
Philosophy	100.0	109.7	122.4	125.7	138.0	138.8	137.2	140.4	131.9	130.9	133.3	130.9	128.7
Religious Studies	100.0	100.0	116.1	213.7	202.8	203.2	216.5	233.5	233.1	229.8	232.3	239.9	232.7
Sub-total Humanities	100.0	110.3	125.1	139.3	147.3	148.9	146.3	146.3	143.4	145.4	143.1	141.4	139.4
Anthropology	100.0	113.6	136.9	189.3	261.2	324.3	321.4	335.9	359.2	376.7	401.9	401.9	391.3
Area Studies	100.0	113.1	113.7	91.5	68.6	62.1	77.8	79.7	56.9	60.8	56.9	53.6	54.2
Commerce, Business Administration	100.0	120.9	136.5	141.8	183.9	189.6	209.4	244.4	268.5	296.8	310.2	328.5	341.6
Economics	100.0	114.3	128.3	129.0	144.8	150.3	152.2	160.3	161.6	161.6	173.4	177.8	181.5
Geography	100.0	113.2	139.4	155.4	181.2	190.1	187.4	189.2	195.7	204.3	212.6	219.1	216.0
Law	100.0	110.8	129.1	143.2	154.0	150.0	181.3	189.2	197.5	209.4	224.5	237.4	243.2
Political Sciences	100.0	117.4	137.2	171.0	208.5	221.3	210.7	207.9	217.1	222.2	236.6	237.2	235.7
Psychology	100.0	112.5	150.3	150.7	173.1	178.0	182.9	188.7	196.7	204.8	219.9	221.6	220.5
Social Work	100.0	122.9	151.2	178.6	209.2	206.9	220.6	254.2	268.7	268.7	287.0	279.4	283.2
Sociology	100.0	136.7	182.7	234.0	276.3	268.7	282.7	295.3	301.0	305.7	325.0	320.7	320.7
Sub-total Social Sciences	100.0	117.1	141.2	154.3	181.0	186.3	194.2	205.5	213.8	223.0	236.5	241.2	243.5
Agriculture	100.0	106.5	109.5	124.1	119.2	125.4	134.2	119.2	139.7	148.8	149.2	148.2	148.2
Biology	100.0	115.7	152.9	134.7	140.3	145.6	154.2	157.3	184.7	192.9	187.4	180.3	183.8
Botany	100.0	103.0	109.0	140.6	119.6	141.4	143.6	131.6	159.4	150.4	149.6	162.4	158.6
Household Science and Related	100.0	109.0	147.0	119.4	155.2	164.9	177.6	167.2	206.0	216.4	213.4	214.2	204.5
Veterinary Medicine and Sciences	100.0	112.9	147.1	150.6	124.7	184.7	158.8	200.0	228.2	271.8	293.0	265.9	283.5
Zoology	100.0	119.9	124.9	55.7	66.1	72.7	71.3	98.6	76.0	77.4	78.3	80.3	75.8
Sub-total Biological Sciences	100.0	113.3	131.8	110.2	113.7	124.3	128.0	134.1	146.9	154.0	153.6	151.6	151.1
Architecture	100.0	115.0	175.8	112.5	145.8	151.7	156.7	178.3	161.7	165.8	172.5	169.2	175.0
Chemical Engineering	100.0	111.1	119.6	139.2	160.8	156.9	157.5	158.2	143.1	149.0	149.0	146.4	149.0
Civil Engineering	100.0	90.7	115.6	117.6	124.7	121.3	125.8	121.0	98.9	108.8	108.5	109.1	111.0
Electrical Engineering	100.0	112.8	118.8	139.4	137.2	102.5	101.4	139.7	148.6	168.8	164.9	162.4	166.0
Mechanical Engineering	100.0	116.8	126.2	142.2	138.1	141.8	135.7	137.7	141.4	155.3	156.1	157.4	159.4
Mining Engineering	100.0	100.9	116.4	169.0	95.7	104.3	94.0	96.6	42.2	43.1	43.1	45.7	43.1
Forestry	100.0	115.0	151.7	158.3	150.0	130.0	135.0	255.0	150.0	141.7	146.7	165.0	156.7
Other Applied Sciences	100.0	114.2	164.2	118.3	119.9	190.2	204.1	169.5	251.2	226.8	246.3	258.9	270.3
Sub-total Applied Sciences	100.0	111.1	131.8	132.5	132.3	136.7	138.6	145.8	145.0	149.9	153.0	155.2	158.6
Dentistry	100.0	120.6	135.5	165.3	167.4	133.3	184.4	193.6	209.2	219.8	222.0	219.9	224.1
Medicine and related	100.0	115.1	123.4	215.9	247.7	259.7	273.4	271.7	286.3	298.6	314.7	328.4	341.0
Nursing	100.0	123.2	128.8	149.8	164.4	176.8	185.0	231.8	237.8	253.2	262.2	254.9	260.1
Pharmacy	100.0	124.7	212.9	120.0	132.9	138.8	168.2	161.2	175.3	180.0	180.0	180.0	180.0
Sub-total Health Sciences	100.0	117.2	130.2	196.3	221.9	227.2	245.3	252.6	266.1	278.3	291.3	299.7	309.8
Mathematics	100.0	108.0	124.4	139.6	150.7	141.8	133.8	127.3	189.9	190.0	196.0	199.6	200.6
Chemistry	100.0	112.0	121.2	110.6	125.4	141.2	138.7	133.9	106.9	108.7	113.5	114.4	114.0
Geology	100.0	115.0	132.7	150.0	207.7	230.0	234.5	230.5	207.7	217.3	198.6	199.1	202.7
Physics	100.0	108.6	122.5	133.6	152.4	163.6	158.8	206.5	139.7	138.8	141.2	138.8	140.3
Sub-total Physical Sciences	100.0	110.0	123.6	130.1	147.9	154.3	153.4	159.9	153.1	154.2	157.0	157.9	158.8
Grand Total	100.0	112.9	130.7	147.3	161.4	166.9	170.9	177.9	184.3	189.6	192.6	195.4	196.4



